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COTTON QUOTAS AND ALLOTMENTS AND CALIFORNIA FARM ADJUSTMENTS IN 1954

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An analysis of the probable impact of national cotton quotas and acreage allotments on the agriculture of California.

CALIFORNIA AGRICULTURAL EXPERIMENT STATION
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I. Introduction

Extensive adjustments in the agriculture of all major producing areas must be made in 1954. Acreage allotments and marketing quotas, already established and approved for wheat and cotton and expected shortly for corn, are the primary cause for such adjustments. In addition to the direct effects on these major crops, the secondary and even more indirect repercussions brought about by the individual cotton, wheat, and corn farmer's changes in farm organization will carry the impact of these restriction programs to nearly every commercial farmer in the United States. Both the egg producer in California and the broiler producer in Maryland will be affected by the acreage shift from cotton to milo in the western states. Some California and Arizona cotton farmers will produce vegetable crops which will compete with those grown in the strictly commercial vegetable areas of the United States. These examples could be extended to practically the entire range of California and U.S. farm production.

Just how extensive is this diversion program to be undertaken in 1954? If the national allotments remain as announced (wheat, 62 million acres and cotton 17.9 million acres), a total of 23.3 million acres will be transferred from what they produced in 1953 to some alternative use. Cotton acreage to be diverted totals 6.7 million acres and wheat 16.6 million acres. An acreage allotment program for corn has not been announced but this diversion could add several million more acres to the total. A move announced by the Senate

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1/ The material in this report served as the basis for Cotton Quotas and Allotments reprinted from California Agriculture 7 (9-12):1953. It is a more complete analysis than appeared in the earlier release, and has been revised according to recent developments concerning 1954 allotments.

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Agriculture Committee on January 7, 1954 will increase cotton allotments and cut the diverted acres--if it matures in new legislation. Regardless of such potential variations in scope of the problem, the fact remains that acreage allotments and diversion programs present serious problems to California and U.S. farmers in 1954.

If this adjustment program were likely to be limited to one-year duration, the impact while severe would not necessitate drastic changes in our agricultural organization. The outlook, however, is for continuing production controls during the next several seasons. Factors pointing in this direction include declining shipments to foreign markets, increasing acceptance and utilization of synthetic fibers, and an expanded production base for our major agricultural products, all encouraged by artifically supported domestic prices. It appears now that only major revision of the statutes pertaining to agricultural price and income supports will change this picture. Such allotment increases as mentioned above for cotton will operate to delay the date when production and consumption are in balance, and, thus, to perpetuate marketing quotas and acreage allotments.

To California, the cotton adjustment program is of greatest concern in 1954. This crop produced nearly 20 per cent of our cash receipts from farm marketings last year and thereby ranks first among California's crops in value. Cotton occupies a major portion of the land on the great bulk of irrigated farms in certain of the major agricultural counties of the state: Fresno, Kern, Kings, Tulare, Merced, and Madera counties. In the two southern counties of Riverside and Imperial the cotton acreage in the last five years has increased from 9,000 to 159,000 acres. Under the announced program based on legislation in effect on December 31, 1953, 706,000 of California's irrigated acres--about 10 per cent of California's total irrigated acreage--must be taken out of cotton and diverted to other uses.

The purpose of this paper is to analyze the impact of this restriction program on the economy of California's cotton farms. It is also proposed to point out the types of adjustments anticipated, alternatives available to cotton producers in different areas, and, particularly the position of livestock as an alternative in the central and southern irrigated valleys of California. A brief explanation of the mechanics of allotment establishment is included.

An evaluation of the cotton acreage allotment problem is necessary to assist producers, bankers, persons selling to and buying from farmers, and those persons advising farmers in making the types of adjustments necessary to meet the impact of these allotments. No specific recommendations are made for any producer. Each individual cotton farmer must decide his own action on the basis of the specific conditions prevailing in his case. Rather than to recommend specific adjustments, this paper is designed to assist the farmer in a logical evaluation of the allotment problem and matters he should consider in making his adjustment decisions.

Data for this paper came primarily from published sources of the United States Department of Agriculture, California State Department of Agriculture, and recent research conducted in the San Joaquin Valley on cotton farm organization. Because of the timeliness of the problem the authors have found it necessary to make many estimates. These estimates have been based on all data available, opinions of persons acquainted with specific facets of the problem, and extensive research experience in the cotton areas of both California and other major cotton production areas of the United States.

II. Legislative Basis for Cotton Acreage Allotment and Marketing Control Programs

Allotments Under Proposed 1954 Changes.--Statutory law of the United States governs the procedure for establishing cotton acreage allotments and marketing quotas from the national to the individual farm levels. At the end of 1953 these laws were embodied in a group of statutes passed in 1938 and later years, including the Agricultural Act of 1938, amendments to this Act, and other related statutes. The specific and detailed provisions and implications of these laws are discussed and analyzed below. It appeared highly probable as Congress reconvened on January 7, 1954, however, that these basic laws and the regulations based upon them concerning cotton acreage allotments will be modified before the 1954 cotton marketing quotas and acreage allotments are put into operation. The chairman of the Senate Agriculture Committee announced on the opening day of the session that the Committee had reached "general agreement" on a measure to increase the national cotton acreage allotment on the 1954 crop from 17.9 million acres to 21,379,000 acres.1/

California's share in the national acreage allotment will be approximately 936,408 acres if new legislation of the nature outlined by the chairman of the Senate Agriculture Committee is passed in time to be effective for the forthcoming 1954 cotton production season. Such an acreage compares with 697,800 for allotments possible under the existing statutes, and an estimated 1,404,000 on July 1, 1953. Such an upward adjustment would assist considerably in lessening the seriousness of the adjustments that California farmers will have to make under the acreage allotment program in 1954.

This proposal to modify the governing statutes under which acreage allotments are established and administered is still just a proposal. The necessary bill(s) must be passed by both houses of Congress and signed by the President in short order to permit the changes they authorize to have full effect in 1954. It also must be understood that legislative changes in the general proposal as outlined at the beginning of the session are likely, and that major alteration is entirely possible. The following analysis and discussion recognizes the uncertainties surrounding this move by the members of the Senate Agriculture Committee to modify the cotton

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1/ Wall Street Journal, January 7, 1954, page 3.
Congressional action on a bill embodying this proposal and other features was completed on January 22, and the bill was sent to the President for signature.

allotment for 1954. First, the major effects of the proposed new legislation to be expected if it becomes law are examined so far as specific information is available. Second, the basic framework of statutory law governing agricultural marketing quotas and acreage allotments is summarized and explained in broad outline. Third, these laws are examined and their meaning analyzed in terms of the cotton producing industry at both the national and the California level. This treatment goes as far as it is practicable to go, considering data at hand, in attempting to anticipate all likely alternatives in 1954 under the cotton acreage control program. The analysis cannot be precise in pin-pointing the full effects of the acreage allotment on California farmers for the reason that the final decisions have not been made, and necessary information, therefore, is not available. The procedure followed does underscore the major legal and procedural issues involved.

The California cotton acreage allotment will include three elements if existing statutes are modified according to the proposed new legislation. The major portion or the "basic allotment" will be approximately 829,452 acres representing California's share of the revised national allotment of 21 million acres (raised from the 17.9 millions authorized under existing legislation). In addition will be the California share of the "national reserve" estimated at 83,956 acres, and her share of the "special pool" estimated at 23,000 acres (Table 1). The total of these three elements, 936,408 acres represents the allotment to be distributed among the various counties and farmers in California.

Estimates have been prepared indicating the county allotments in California based upon the state share of the 21,000,000 acre national allotment (Table 1). Of the 829,452 acres involved, 746,507 would be allocated initially among counties and 82,945 acres would be put into the "state reserve" under existing legislation. The latter amount, plus the elements listed above as national reserve, 83,956 acres, and special pool, 23,000 acres--a total of 189,901 acres--would be used to correct inequities and deal with hardship cases among the farmers in the several cotton counties. The estimates presented here include only the 746,507 acres of the basic allotment to be initially distributed. No attempt was made to project how the remaining 189,901 acres will be distributed among counties and farmers if this new proposal becomes law. The estimates are limited in this manner for the reason that the information available is inadequate to permit reasonably useful judgment on the actual apportioning

TABLE 1

Estimated 1954 Basic Cotton Acreage Allotments for California Counties; Comparisons Basis Legislation Existing December 31, 1953 and Proposed New Legislation Establishing National Allotment 21,379,000 Acres a/ b/

County	5-year average acreage in cultivation	1954 county allotment	Annual acreage 1951	1952	1953	average 1951-1953	1954 allotment 21,379,000 acre basis
Merced	37,820	25,720	63,100	62,400	52,800	59,433	30,234
Madera	66,134	46,025	92,320	84,000	69,600	81,973	52,870
Fresno	248,240	183,841	342,000	380,000	379,000	367,000	198,451
Kings	122,480	85,926	183,000	159,000	168,000	170,000	97,913
Tulare	187,380	129,955	270,500	271,000	246,000	262,500	149,797
Kern	230,700	165,466	317,200	319,000	326,300	320,833	184,429
Total San Joaquin Valley	892,754	636,933	1,268,120	1,275,400	1,241,700	1,261,740	713,694
Riverside	13,835	17,380	25,545	33,000	48,000	35,515	11,060
Imperial	25,867	40,878	34,500	94,000	111,000	79,833	20,679
Total Southern California	39,702	58,258	60,045	127,000	159,000	115,348	31,739
Others	1,344	1,470	2,835	3,600	3,300	3,245	1,074
Total California	933,800	696,661 c/	1,331,000	1,406,000	1,404,000	1,380,333	746,507
State Reserve (.1 of state allotment)							82,945
Proposed California basic allotment under national 21,379,000 acre allotment							829,452
California's tentative share of "national reserve"							83,956 b/
California's tentative share of "special pool"							23,000 b/
California's proposed total allotment, including basic and reserve allotments							936,408
Total reserves and special pool, in addition to basic allotment							189,901

a/ County basic allotments estimated by authors using 829,452 acres as California's share in 21,379,000 acre national allotment outlined by chairman, U.S. Senate Agriculture Committee, on January 7, 1954.

b/ Total state allotment would be increased to 936,408 acres and the 106,956 acre difference, representing 83,956 acres from the "national reserve" plus 23,000 acres from the "special pool" together with the 10 per cent "state reserve" of 82,945 acres would be allocated among counties and farmers according to prescribed rules.

c/ Compared with total state allotment, including undivided state reserve, of 697,802 acres.

of these extra acres under the proposed new allotment. The Committee chairman's announcement stated that the larger of two alternative determinations might be used in granting hardship increases; (1) 65 per cent of the farmer's average area planted to cotton for the past three years, or (2) 40 per cent of his largest area planted in any one of those years. Calculations were made to determine what amount of the 189,901 acres would be required to bring county total acreage to the level of 65 per cent of the average for the past three seasons, 1951-1953. A total of 150,707 acres would be required, which would leave 39,194 acres for meeting the needs of other hardship cases.

The partial estimates prepared according to the proposed new basic cotton allotment for California are adequate to demonstrate that the increased acres under this plan would aid appreciably in relieving the impact of the 1954 cotton allotment. The portion of the proposed new allotments estimated here exceed the county allotments announced by the Secretary of Agriculture in December for all counties except those in southern California (Table 1). All counties would receive additional acres under any formula used for allocating the 189,901 acres not considered in these estimates, while Imperial and Riverside counties might reasonably be expected to receive sharp increases due to the fact that they were later than most of the San Joaquin Valley counties in expanding cotton acreage.

Allotments Under Statutes Effective December 31, 1953.--The Agricultural Adjustment Act of 1938 defined the procedure for determining the marketing quotas for the years 1938 and 1939, for converting the marketing quota into a national acreage allotment, and for apportioning this allotment.2/ Two months after the passage of this act an amendment was approved which specified a minimum allotment for any state and farm,3/ and provision for a national minimum allotment for any year after 1939 of 10 million acres was added the following year.4/

2/ Public, No. 430, 75th Congress, Chapter 30, 3rd Session, approved February 16, 1938. See particularly Title III, Subtitle B, Part IV.

3/ Public, No. 470, 75th Congress, Chapter 107, 3rd Session, approved April 7, 1938.

4/ Public Resolution, No. 32, 76th Congress, Chapter 376, 1st Session, approved July 26, 1939.

The Agricultural Act of 1948 amended several sections of the original legislation but this act was superceded by other legislation prior to its becoming effective.[5] A provision to eliminate the acreage planted to cotton in 1949 in the computation of cotton allotments for subsequent years was approved early in that year.[6] Prior to the imposition of cotton allotments in 1950, Congress approved substantial changes in the law.

It was this legislation which provided the basic definitions of the "national marketing quota," "acreage allotments," and "farm marketing quotas" for cotton, now used by the Secretary of Agriculture in proclaiming quotas and allotments.[7] Minor changes, primarily for clarification, were made in the quotas and allotment provisions by the Agricultural Act of 1949.[8] These acts and amendments provide the basis for the quota and allotment system for cotton.

The Secretary of Agriculture, while charged with the responsibility of proclaiming and administering quotas and allotments, has little voice in determining when allotments are to be invoked and what the national acreage allotment will be. State and county agencies, likewise, must operate within the specific terms of the law. The following section from the Agricultural Adjustment Act of 1938 as amended is indicative.

> "Sec. 342. Whenever during any calendar year the Secretary determines that the total supply of cotton for the marketing year beginning in such calendar year will exceed the normal supply for such marketing year, the Secretary shall proclaim such fact and a national marketing quota shall be in effect for the crop of cotton produced in the next calendar year. The Secretary shall also determine and specify in such proclamation the amount of the national marketing quota in terms of the number of bales of cotton (standard bales of five hundred pounds gross weight) adequate, together with (1) the estimated carryover at the beginning of the marketing year which begins in the next calendar year and (2) the estimated imports during such marketing year, to make available a normal supply of cotton. The national marketing quota for any year shall be not less than ten

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5/ Public Law 897, 80th Congress, Chapter 827, 2nd Session, approved July 3, 1948.

6/ Public Law 28, 81st Congress, Chapter 38, 1st Session, approved March 29, 1949.

7/ Public Law 272, 81st Congress, Chapter 518, 1st Session, approved August 29, 1949.

8/ Public Law 439, 81st Congress, Chapter 792, 1st Session, approved October 31, 1949.

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5/ Public Law 29, 81st Congress, Chapter 30, 1st Session, approved March 29, 1949.

6/ Public Law 272, 81st Congress, Chapter 518, 1st Session, approved August 29, 1949.

7/ Public Law 439, 81st Congress, Chapter 781, 1st Session, approved October 31, 1949.

> million bales or one million bales less than the estimated domestic consumption plus exports of cotton for the marketing year ending in the calendar year in which such quota is proclaimed, whichever is smaller: Provided, That the national marketing quota for 1950 shall be not less than the number of bales required to provide a national acreage allotment of twenty-one million acres. Such proclamation shall be made not later than October 15 of the calendar year in which such determination is made." 9/

Both "normal supply" and "total supply" are defined in subsequent legislation.

> "The 'normal supply' of cotton for any marketing year shall be the estimated domestic consumption of cotton for the marketing year for which such normal supply is being determined, plus the estimated exports of cotton for such marketing year, plus 30 per centum of the sum of such consumption and exports as an allowance for carry-over."
>
> "'Total supply' of cotton for any marketing year shall be the carry-over at the beginning of such marketing year, plus the estimated production of cotton in the United States during the calendar year in which such marketing year begins and the estimated imports of cotton into the United States during such marketing year." 10/

The Secretary is required to estimate certain values such as domestic consumption and exports for the coming marketing year. Legal precedents preclude the Secretary's use of these estimates to evade the intent of Congress. "Normal consumption" was first defined in the basic act as the "yearly average quantity of the commodity produced in the United States that was consumed in the United States during the ten marketing years immediately preceding the marketing year in which such consumption is determined, adjusted for current trends in such consumption."11/ The definition of normal year's exports was also based on a 10-year period with allowance for trend adjustment.

9/ Public Law 272, 81st Congress, Chapter 518, 1st Session, approved August 29, 1949.

10/ Section 415 paragraphs (c) and (d) Public Law 439, 81st Congress, Chapter 792, 1st Session, approved October 31, 1949.

11/ Section 301 paragraph (b) Title III Public, No. 430, 75th Congress, Chapter 30, 3rd Session.

The computations for the 1954 national cotton marketing quota under legislation in force December 31, 1953 can be expressed as follows:

$$MQ_{54} + E(Ca)_{54-55} + E(I)_{54-55} = E(Co)_{54-55} + E(E)_{54-55} + .3 \left[E(Co)_{54-55} + E(E)_{54-55}\right]$$

or $$MQ_{54} = 1.3 \left[E(Co)_{54-55} + E(E)_{54-55}\right] - \left[E(Ca)_{54-55} + E(I)_{54-55}\right]$$

where: MQ_{54} = national marketing quota for 1954.

$E(Ca)_{54-55}$ = estimated carryover (1954-55 marketing season).

$E(I)_{54-55}$ = estimated imports (1954-55 marketing season).

$E(Co)_{54-55}$ = estimated consumption (1954-55 marketing season).

$E(E)_{54-55}$ = estimated exports (1954-55 marketing season).

This marketing quota is then converted to a national acreage allotment by dividing by the average yield for the recent five-year period omitting 1949:

$$AA_{54} = \frac{MQ_{54}}{\bar{Y}_{47,48,50-52}}$$

where: AA_{54} = national acreage allotment for 1954.

MQ_{54} = national marketing quota (as defined above).

$\bar{Y}_{47,48,50-52}$ = national average yield (5 year, excluding 1949).

California's share of this national allotment would be computed by adjusting the average state acreage planted for the five years preceding the year allotments are being proclaimed by a percentage factor obtained by dividing the national acreage allotment for the particular year by the average national acreage for the preceding five years. This computation would be as follows:

$$AA_{\text{Calif } 54} = \bar{A}_{\text{Calif } 47,48,50\text{-}52} \left(\frac{AA_{54}}{\bar{A}_{\text{U.S. } 47,48,50\text{-}52}} \right)$$

where: $AA_{\text{Calif } 54}$ = acreage allotment for California 1954.

$\bar{A}_{\text{Calif } 47,48,50\text{-}52}$ = average cotton acreage planted in California (5 years, excluding 1949).

AA_{54} = national acreage allotment for 1954.

$\bar{A}_{\text{U.S. } 47,48,50\text{-}52}$ = average cotton acreage planted in U.S. (5 years, excluding 1949).

The individual county allotments would be established in similar manner to the state allotment except for a reserve of up to 10 per cent which could be held by the state committee for later adjustments.

$$AA_{\text{county } 54} = \bar{A}_{\text{county } 47,48,50\text{-}52} \left[\frac{AA_{\text{Calif } 54} - .1\,(AA_{\text{Calif } 54})}{\bar{A}_{\text{Calif } 47,48,50\text{-}52}} \right]$$

After the county held up to 15 per cent of its allotment in reserve for later adjustments, the remainder would be divided among farms. Each cotton farm would have as its allotment base the acreage tilled in the preceding year or in regular rotation excluding from such acreage the acres devoted to the production of wheat, rice, sugar beets, orchards, and vineyards and the nonirrigated cropland.[12] The farm allotment would be computed by applying to each farm acreage allotment base (adjusted tilled acreage) the percentage factor obtained by dividing the county acreage allotment, less the county acreage reserve, by the sum of the adjusted tilled acreage on all cotton farms in the county. County reserves are used for correcting inequities at the county and farm level, and for establishing new farm allotments. Computation of the individual farm allotment, interpreting the law strictly, can be expressed as follows:

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[12] Public Law 272, 81st Congress, Chapter 518, 1st Session, approved August 29, 1949. Section 344 paragraph (f) (2).

$$AA_{\text{farm } 54} = A_{\text{farm } 53} \left[\frac{AA_{\text{county } 54} - .15\,(AA_{\text{county } 54})}{\sum_{F=1}^{N} A_F} \right]$$

where: $AA_{\text{farm } 54}$ = 1954 farm cotton acreage allotment.

$A_{\text{farm } 53}$ = cotton farm's tilled acreage in 1953 (farm acreage allotment base)

$AA_{\text{county } 54}$ = county acreage allotment for 1954.

$\sum_{F=1}^{N} A_F$ = total of tilled acreage on all cotton farms in the county (adjusted cropland)

Certain additional limitations are imposed on individual farm allotments. First, a minimum allotment for any farm is established. To each farm on which cotton has been planted during any of the previous three years the smaller of the following is allotted: (1) five acres, or (2) the highest number of acres planted to cotton (plus the acres diverted from the production of cotton under any agricultural adjustment or conservation programs) in any year of such three-year period. Secondly, a maximum allotment for any farm is established as follows: if a farm would be allotted an acreage in excess of the largest acreage planted to cotton plus the acreage diverted from the production of cotton under the agricultural adjustment or conservation program during any of the preceding three years, the acreage allotment for such farm shall not exceed the largest acreage planted and diverted in any such year.

Other special adjustment provisions are contained in the legislation to allow for new growers, those who do not produce cotton each year, and other special but relatively unimportant cases.

If a producer fails to comply with the cotton marketing quota for his farm, he is subject to a penalty on the excess cotton produced at a rate per pound equal to 50 per cent of the parity price per pound.[13/]

[13/] Section 346 paragraph (a) Public Law 272, 81st Congress, Chapter 518, 1st Session, approved March 29, 1949.

Most important to the cotton farmer is the impact this legislation has on his state and county allotments and, finally, on his individual farm allotment. A comparison of 1954 state allotments with the five-year average base acreage and the 1953 acreage under statutes effective on December 31, 1953, indicates that Texas must absorb nearly one-third of the total acreage reduction from last year's planted acreage but that this cut amounts to only a 23 per cent reduction (Table 2). The three western states--California, Arizona, and New Mexico--must reduce the most, percentagewise, with 50, 57, and 48 per cent, respectively. Florida receives a reduction of 49 per cent from its 1953 planted acreage of 65,000 acres.

Eight of the sixteen cotton-producing states must make greater acreage reductions than California from the five-year base average. But, California, with over 706,000 acres to divert, stands second only to Texas in reduction from 1953 (Table 2). This fact underscores the importance of geographic shifts in cotton acreage which have taken place, particularly in the past seven years. Between 1947 and 1953 acreage decreased in Arkansas and Oklahoma; increased less than 10 per cent in South Carolina, Georgia, and Mississippi; and increased more than 10 but less than 20 per cent in all other southern cotton states except Tennessee. Meanwhile, the acreage in California, Arizona, New Mexico, and Florida almost tripled during this period (Table 3). These acreage changes occurred during a period when cotton prices were supported at a level sufficient to make this crop a favorable alternative in most producing areas. A study of five-year averages over a longer period indicates the acreage pattern even more clearly. The southeast maintained its proportion of the acreage from 1930 through the early war period but has declined since (Table 4). The Delta increased its percentage from the 1930-1934 period to the postwar period of 1945-1949 but has dropped sharply during the most recent three years. In contrast, acreage in the southwest exhibits the reverse pattern--a percentage decline from 1930-1934 through 1945-1949 and then a sharp increase. The west has increased its percentage regularly throughout the period. The percentage shifts from the 1945-1949 period to the 1950-1953 period, however, are of particular interest to California producers. Between these periods nearly 7 per cent of the acreage shifted from the southeast and Delta states to the southwest and west (Table 4). This has represented a net shift to more highly productive acreage which is adapted to mechanized production. A comparison based on production rather than

TABLE 2

1954 Cotton Allotments by States with Comparisons, Basis Legislation Effective December 31, 1953

State	5-year average acreage a/	1954 allotment b/	1953 acreage in cultivation July 1 c/	Reduction 1954 from 5-year average: acres	Reduction 1954 from 5-year average: per cent d/	Reduction 1954 from 1953: acres	Reduction 1954 from 1953: per cent d/
	thousand acres						
Missouri	505	391.4	515	113.6	22	123.6	24
Virginia	23	18.3	30	4.7	20	11.7	39
North Carolina	690	528.6	770	161.4	23	241.4	31
South Carolina	1,048	786.0	1,080	262.0	25	294.0	27
Georgia	1,298	1,005.9	1,365	292.1	23	359.1	26
Florida	41	33.1	65	7.9	19	31.9	49
Tennessee	753	575.9	905	177.1	24	329.1	36
Alabama	1,499	1,139.1	1,590	359.9	24	450.9	28
Mississippi	2,382	1,759.6	2,430	622.4	26	670.4	28
Arkansas	2,049	1,562.7	1,885	486.3	24	322.3	17
Louisiana	876	634.9	920	241.1	27	285.1	31
Oklahoma	1,207	929.2	1,045	277.8	23	115.8	11
Texas	9,689	7,376.9	9,600	2,312.1	24	2,223.1	23
New Mexico	237	167.2	320	69.8	29	152.8	48
Arizona	401	288.2	678	112.8	28	389.8	57
California	934	697.8	1,404	236.2	25	706.2	50
Other States e/	16	15.5	16	.5	4	.5	4
United States	23,646	17,910.5	24,618	5,735.5	24	6,707.5	27

a/ Average acreage in cultivation July 1, 1947, 1948, 1950, 1951, 1952.

b/ As announced by the Secretary of Agriculture November 23, 1953, rounded to nearest hundred acres.

c/ USDA BAE "Cotton Crop Report as of July 1, 1953."

d/ Rounded to nearest per cent.

e/ Illinois, Kansas, Kentucky, and Nevada.

TABLE 3

Cotton Acreage in Cultivation July 1, United States, Annual 1947-1953, with Averages for Specified Periods

State	Average 1936-40 a/	1947	1948	1949	1950	1951	1952	1953	Average 1949-53	Average 1951-53
	thousand acres									
Missouri	422	440	563	604	449	570	495	515	527	527
Virginia	45	23	26	33	23	19	26	30	26	25
North Carolina	897	654	742	869	601	698	753	770	738	740
South Carolina	1,358	1,055	1,123	1,283	879	1,075	1,109	1,080	1,085	1,088
Georgia	2,163	1,278	1,295	1,618	1,054	1,424	1,439	1,365	1,380	1,409
Florida	82	24	30	51	32	63	55	65	53	61
Tennessee	784	704	773	845	644	805	841	905	808	850
Alabama	2,211	1,505	1,637	1,825	1,327	1,469	1,556	1,590	1,554	1,538
Mississippi	2,798	2,379	2,583	2,859	2,084	2,463	2,399	2,430	2,447	2,431
Arkansas	2,405	2,085	2,335	2,616	1,728	2,189	1,910	1,885	2,066	1,995
Louisiana	1,268	838	957	1,077	739	949	899	920	917	923
Oklahoma	1,977	1,155	1,069	1,344	965	1,561	1,283	1,045	1,240	1,296
Texas	9,982	8,426	8,806	10,988	7,048	12,407	11,756	9,600	10,360	11,254
New Mexico	114	157	215	323	176	328	310	320	291	319
Arizona	224	226	282	401	280	548	669	678	515	632
California	401	536	810	963	586	1,331	1,407	1,404	1,138	1,380
Other States	23	15	18	20	14	18	15	16	17	16
United States	27,113	21,500	23,264	27,719	18,629	27,917	26,922	24,618	25,161	26,486

a/ Average acreage harvested rather than planted.

TABLE 4

Cotton Acreage in Cultivation July 1 by Groups of States, 5-year Averages 1930-1953

Years	Southeast a/		Delta b/		Southwest c/		West d/		Others e/		Total acres
	thousand acres	per cent of U.S. total	thousand acres	per cent of U.S. total	thousand acres	per cent of U.S. total	thousand acres	per cent of U.S. total	thousand acres	per cent of U.S. total	
1930-1934	9,054	24.2	10,014	26.7	17,828	47.7	489	1.3	2.4	.1	37,408
1935-1939	7,007	24.6	7,791	27.4	12,967	45.4	706	2.4	2.4	.1	28,496
1940-1944	5,511	24.3	6,622	29.3	9,807	43.3	672	2.9	2.0	.1	22,632
1945-1949	4,750	22.1	6,588	30.5	9,311	42.7	1,016	4.5	1.8	.1	21,683
1950-1953f/	4,626	19.1	6,455	26.7	11,416	46.2	2,009	8.1	1.6	.1	24,522

a/ Virginia, North Carolina, South Carolina, Georgia, Alabama.

b/ Missouri, Arkansas, Tennessee, Mississippi, Louisiana.

c/ Texas, Oklahoma.

d/ California, Arizona, New Mexico.

e/ Illinois, Kansas, Kentucky, Nevada.

f/ Four-year average.

acreage, therefore, would indicate even a greater share of the cotton production moving westward.

To impose allotments computed on an historical base halts any major locational shift in acreage and production. This is true for cotton allotments as announced in December, 1953 for the 1954 crop season (Tables 2 through 4). In California three counties, Fresno, Kern, and Tulare, must absorb two-thirds (66.8 per cent) of the total reduction from the 1953 acreage for the state, Fresno County alone over one-quarter (27.6 per cent) (Table 5). The two southern California counties--Riverside and Imperial--are subject to the greatest percentage loss in acreage. The reduction in these two counties exceeds 63 per cent of the 1953 planted acreage.

The use of historical base periods has the same impact on county allotments as was shown for the state allotments. In a state like California, however, where the cotton acreage has expanded in all producing areas, the results of the historical base system of acreage distribution are less striking. A comparison of the reduction in Riverside and Imperial with other California cotton counties best illustrates this point. The first year of expansion in these two counties was 1951 when the combined acreage increased from 4,824 in 1950 to 60,045 in 1951 (Table 6). By 1953 the combined acreage was 159,000, more than a 250 per cent increase in three years. During the same three years the combined acreage in the San Joaquin Valley rose from 317,200 to 326,300, less than 3 per cent. A similar comparison for the five base average years reveals that San Joaquin Valley cotton acres increased from 533,050 in 1947 to 1,275,400 in 1952, and that the average for the base period was 892,750 acres, 30 per cent below the 1952 year (Table 6). For Imperial and Riverside counties the 1947 acreage was 2,900 compared with 127,000 in 1952. The five-year average was 39,700 acres, 70 per cent below that of 1952! A five-year base period, therefore, works hardship on individual counties just as it does on states. Fortunately, other factors affect the state allocation among counties. Division among counties on a strict historical base would further aggravate the problem of adjustment facing producers in these areas of recent expansion.

Impact of Alternative Proposals.--No fewer than eighteen bills which would have amended the legislation governing cotton acreage allotments, were introduced into the House of Representatives, Eighty-third Congress, First Session. Many of these proposals were closely similar but there were two

TABLE 5

1954 Cotton Allotments for California Counties with Comparisons, Basis Legislation Effective December 31, 1953

County	5-year average acreage in cultivation a/	1954 county allotments	1953 acreage in cultivation July 1 b/	Reduction 1954 from 1953 acres	Reduction 1954 from 1953 per cent
	acres	acres	acres		
Merced	37,820	25,720	52,800	27,080	51.3
Madera	66,134	46,025	69,600	23,575	33.9
Fresno	248,240	183,841	379,000	195,159	51.5
Kings	122,480	85,926	168,000	82,074	48.9
Tulare	187,380	129,955	246,000	116,045	47.2
Kern	230,700	165,466	326,300	160,834	49.3
Total San Joaquin Valley	892,754	636,933	1,241,700	604,767	48.7
Riverside	13,835	17,380	48,000	30,620	63.8
Imperial	25,867	40,878	111,000	70,122	63.2
Total Southern California	39,702	58,258	159,000	100,742	63.4
Others	1,344	1,470	3,300	1,830	55.5
Total California	933,800	696,661 c/	1,404,000 d/	706,198 e/	50.3 e/

a/ Average acreage in cultivation, July 1 for the five years 1947, 1948, 1950-1952.

b/ California Crop and Livestock Reporting Service "Cotton Report as of July 1, 1953."

c/ Compared with total state allotment, including undivided reserve, of 697,802 acres.

d/ Acreage for harvest November 1 reported as 1,396,000 for California.

e/ Computed for total state allotment of 697,802 acres.

TABLE 6

Cotton Acreage in Cultivation July 1, California by Counties 1947-1953
with Averages for Specified Periods

County	1947	1948	1949	1950	1951	1952	1953	Average 1941-43	Average 1944-46	Average 1947-49	Average 1951-53
	acres										
Merced	18,000	25,800	42,700	19,800	63,100	62,400	52,800	20,170	10,140	28,833	59,433
Madera	46,050	65,400	71,700	42,900	92,320	84,000	69,600	44,267	36,767	61,050	81,973
Fresno	139,000	221,000	264,000	159,200	342,000	380,000	379,000	77,367	77,300	208,000	367,000
Kings	78,000	109,900	127,500	82,500	183,000	159,000	168,000	31,720	49,433	105,133	170,000
Tulare	109,000	168,000	200,500	118,400	270,500	271,000	246,000	81,667	78,133	159,167	262,500
Kern	143,000	216,000	247,000	158,300	317,200	319,000	326,300	71,500	73,467	202,000	320,833
Total San Joaquin Valley	533,050	806,100	953,400	581,100	1,268,120	1,275,400	1,241,700	326,690	325,240	764,183	1,261,740
Riverside	2,891	3,660	8,675	4,080	25,545	33,000	48,000	7,005	970	5,075	35,515
Imperial	9	80	435	744	34,500	94,000	111,000	1,984	9	175	79,833
Total Southern California	2,900	3,740	9,110	4,824	60,045	127,000	159,000	8,989	979	5,250	115,348
Others	50	160	490	76	2,835	3,600	3,300	321	14	233	3,245
Total California	536,000	810,000	963,000	586,000	1,331,000	1,406,000	1,404,000	336,000	326,233	769,666	1,380,333

separate and distinct types of changes advocated. A group, predominantly from the Western States, proposed a recent three-year base period in place of the five-year base. Another group from the older cotton-producing region favored an increase in the basic allotment and a limit on the percentage reduction any state could receive. Since no agreement could be reached, the legislation was not changed. After Congress adjourned farm groups were active in trying to develop a proposal which would receive interregional support. The objective was to have a compromise proposal ready when Congress reconvened for the Second Session.[14]

The use of the most recent three-year base in computing allotments would be particularly advantageous to the West. This procedure would transfer 664.5 thousand acres from eleven of the old cotton states to Florida, Texas, New Mexico, Arizona, and California (Table 7). California and Texas would divide about equally 70 per cent of this amount, each getting approximately 235 thousand acres. This would increase California's allotment to about 933.2 thousand acres. Arizona would receive over 139 thousand more acres and New Mexico 48.5 thousand acres additional allotment if the most recent three-year base were adopted.

Another variation of this three-year base proposal contained the provision that no state in 1954 would have its acreage reduced below 75 per cent of the 1952 planted acreage in that state. This provision would have two effects: (1) the national basic acreage allotment would be increased to over 20 million acres, from 17.9 million acres, and (2) the allotments to all states except Florida would be increased over what would prevail under the three-year base with no restriction on percentage reduction. California would receive over 357 thousand more acres in its allotment bringing the total to 1,055.2 thousand acres. Only Texas, with an increase of 1,440 thousand acres, would receive a greater increment to its allotment. Missouri and Arkansas would receive smaller allotments under this scheme than provided by the five-year base. All other states would receive a greater allotment.

Several proposals to increase the basic allotment above the 17,910 thousand acres have been advanced. Four of these proposals have been compared with the present legislation in terms of the state allotments they would

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[14] See pages 4 to 7 for an analysis of the resulting proposal.

TABLE 7

Comparison of 5-Year and 3-Year Base Period in Computing State Cotton Allotments

State	5-year average planted acreage a/	3-year average planted acreage b/	1954 cotton acreage allotment (5-year base)	Estimated 1954 acreage allotment under conditions of: 3-year base	Estimated 1954 acreage allotment under conditions of: 3-year base and minimum c/	Net acreage allotment increase from 5 to 3-year base and minimum
	thousand acres					
Missouri	505	527	391.4	356.4	371.2	- 20.2
Virginia	23	25	18.3	16.9	19.5	+ 1.2
North Carolina	690	740	528.6	500.4	564.8	+ 36.2
South Carolina	1,048	1,088	786.0	735.7	831.8	+ 45.8
Georgia	1,298	1,409	1,005.9	952.8	1,079.2	+ 73.3
Florida	41	61	33.1	41.2	41.2	+ 8.1
Tennessee	753	850	575.9	574.8	630.8	+ 54.9
Alabama	1,499	1,538	1,139.1	1,040.0	1,167.0	+ 27.9
Mississippi	2,382	2,431	1,759.6	1,643.9	1,799.2	+ 39.6
Arkansas	2,049	1,995	1,562.7	1,349.0	1,432.5	- 130.2
Louisiana	876	923	634.9	624.2	674.2	+ 39.3
Oklahoma	1,207	1,296	929.2	876.4	962.2	+ 33.0
Texas	9,689	11,254	7,376.9	7,610.2	8,817.0	+1,440.1
New Mexico	237	319	167.2	215.7	232.5	+ 65.3
Arizona	401	632	288.2	427.4	501.8	+ 213.6
California	934	1,380	697.8	933.2	1,055.2	+ 357.4
Other States d/	16	16	15.5	10.8	11.2	- 4.3
United States	23,646	26,486	17,910.5	17,910.5	20,191.3	+2,281.0

a/ Average for the 5 years 1947, 1948, 1950, 1951, 1952.

b/ Average for the most recent 3 years 1951, 1952, 1953.

c/ No state allotment for 1954 to be reduced below 75 per cent of 1952 planted acreage in the state.

d/ Illinois, Kansas, Kentucky, Nevada.

provide (Table 8). A minimum national allotment of 21.5 million acres would increase the allotments for all states by about 20 per cent. California's allotment would increase to nearly 851 thousand acres, an increase of more than 150 thousand acres. A minimum allotment of 22.5 million acres would provide almost a 26 per cent increase to all states, California's allotment under this proposal being increased to 890.5 thousand acres.

One proposal combining an increased national allotment with a revision favoring the Western States would increase California's allotment to 923.1 thousand acres. This method of computation is based on a minimum allotment of 21 million acres plus 1½ per cent "hardship" reserve (315,000 acres), half of which would be divided among the three Western States of California, Arizona, and New Mexico proportionate to their five-year average acreage.[15] All state allotments would be increased by this method of allocation with the "West" receiving an additional 157.5 thousand acres, 93.6 thousand to California.

The fourth proposal based on an increase in the national allotment of 21.5 million acres, also contained provisions to limit the reduction of any one state to no more than 27½ per cent below the 1952 planted acreage for those states which otherwise would be reduced below that level or by more than 22½ per cent below the 1952 planted acreage for any other state. This proposal would place California's allotment at 1,020.0 thousand acres and raise the national allotment to more than 22.1 million acres after adjustments for minimum reductions were included.

It is apparent that all proposed changes were designed to alleviate the impact of allotments. While this may be desirable in the short run in order to reduce the hardships on individual producers, the possible long-run repercussions of any increase in cotton production in 1954 must not be overlooked.

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[15] This proposal may be compared with that outlined by the chairman of the Senate Agriculture Committee on January 7, 1954. (See pages 4 to 7).

TABLE 8

Impact on State Allotments for 1954 of Minimum Acreage Allotment with and without Restrictions on Individual State Reductions

State	1954 cotton acreage allotment	Estimated 1954 allotments with national acreage allotment of:			
		21.5 million acres	22.5 million acre national allotment	21 million acres plus 1 1/2 per cent reserve a/	21.5 million acres with limited state reductions b/
	thousand acres				
Missouri	391.4	460.0	481.5	452.1	460.0
Virginia	18.3	21.0	21.9	20.6	21.0
North Carolina	528.6	628.6	657.8	617.7	628.6
South Carolina	786.0	954.7	999.2	938.2	954.7
Georgia	1,005.9	1,182.5	1,237.5	1,162.0	1,182.5
Florida	33.1	37.4	39.1	36.7	40.0
Tennessee	575.9	686.0	717.9	674.1	686.0
Alabama	1,139.1	1,365.6	1,429.1	1,341.9	1,365.6
Mississippi	1,759.6	2,170.0	2,271.0	2,132.4	2,170.0
Arkansas	1,562.7	1,866.6	1,953.5	1,834.3	1,866.6
Louisiana	634.9	798.0	835.2	784.2	798.0
Oklahoma	929.2	1,099.6	1,150.8	1,080.5	1,099.6
Texas	7,376.9	8,826.7	9,237.5	8,673.8	9,111.0
New Mexico	167.2	215.9	226.0	233.6	225.0
Arizona	288.2	365.3	382.0	396.3	485.0
California	697.8	850.9	890.5	923.1	1,020.0
Other States	15.5	14.6	15.2	14.3	15.0
United States	17,910.5	21,541.5	22,544.1	21,315.8	22,128.6

a/ 1 1/2 per cent acreage reserve (315,000 acres), three western states to get half.

b/ No reduction to more than 27 1/2 per cent below 1952 planted acreage for those states which otherwise would be reduced below this level or by more than 22 1/2 per cent for any other state.

III. Impact of Allotments Under Various Programs on California Agriculture

The 1954 national U.S. cotton acreage allotment of 17.9 million acres, or 27.2 per cent less than the 1953 acreage of 24.6 million acres was announced on October 9, 1953 by the Secretary of Agriculture. The Secretary had no choice regarding this announcement in view of the specific requirements of pertinent legislation as reviewed and interpreted in previous sections of this paper. It was mandatory that he announce a cotton marketing quota and acreage allotment for 1954; furthermore, the statutes allow him no choice in the size of the U.S. allotment nor in the manner in which it is to be divided among states, counties, and farmers. Slightly over one-third of the farmers, of course, could have prevented this program coming into effect by rejecting the quotas in the December referendum. They did not do so in view of the impact of such refusal upon the level of supports for cotton lint prices.[1] Such rejection would have meant a drop in support levels from 90 to 50 per cent of parity on the 1954 crop. As discussed above, there remains one other means through which the impact of the acre reduction on California and other U.S. farmers may be modified from that dictated by present legislation. It is possible that some of the new proposals now being considered by various congressional committees and farm organizations may be passed in the 2nd session of the 83rd Congress. Any change in the law may be expected to be accompanied by some change in the cotton acre allotment program; either in terms of the total national allotment or the sharing in this national allotment among the several states. Probably any such changes will increase the acreage allotment for U.S. and California farmers.[2]

The major portion of the following analysis assumes that the size and mechanics of the acre allotment program will be within the framework of legislation in effect on December 1, 1953. This would require a national allotment of 17.9 million acres and California allotted acreage of 697,800 acres. The impact of such a level of cotton production, representing a reduction of 50 per cent from 1953 acreage, is evaluated in terms of the impact upon production of cotton and alternative crops. A further analysis

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[1] Approximately 82 per cent of California growers who voted in the referendum favored acreage controls and allotments.

[2] See pages 4 to 23 in preceding section.

is directed to evaluating the impact if the level of reduction for California should be approximately 27½ per cent rather than the 50 per cent indicated by the present legislation. It is possible, of course, that new legislation, still to result from the forthcoming session of Congress, may establish cotton acreage reduction in California at some percentage different from either the 50 per cent or the 27½ per cent. It is not possible to anticipate precisely what may be the ultimate cotton acreage allotment and, hence, the amount of cotton acreage reduction in California. It is hoped, nevertheless, that the analysis herein, in terms of these two alternative levels of cotton production may prove useful in understanding some of the implications and effects of the forthcoming reduction in California cotton acreage.

Impact of Acreage Reduction Will Vary Among California Cotton Counties.--It is important to analyze the probable impact of 1954 cotton acreage allotments on farmers in individual California counties since the acreage reductions are not uniform and since alternatives to cotton vary significantly from area to area in California.

It is evident from the size of the acre reduction figures presented previously that serious problems inevitably must arise as California cotton growers seek alternative crops to use in 1954 the land that cannot be put in cotton. Two points seem obvious; California cotton growers will make every possible effort to find an alternative crop to replace cotton on the diverted acres; second, the amount of land involved is such that the total effect of these shifts inevitably must bring supply, price, and income problems to other growers of the crops selected as alternatives. It must be recognized, also, that the cotton growers themselves inevitably must sustain serious income losses. This is particularly true in Fresno and Kern counties where cotton net incomes per acre have exceeded those from other possible alternatives lending themselves to such widespread production as cotton. Few farmers expect, therefore, to plant crops which will bring returns comparable with those from cotton. Those who are able to select such crops cannot reasonably expect that they can be used to replace any substantial fraction of the total acreage to be diverted from cotton. The majority of farmers inevitably will be limited to selecting what they consider the most promising enterprise from among a group of second best alternatives to cotton. Any regulations that limit farmers in choosing such enterprises, inevitably must further complicate their 1954 farming

operations. An analysis of the impact of cotton allotments on the individual farm is contained in the next section.

The range of alternative enterprises which can replace cotton varies among California's counties. The range of choice is affected by natural environment, farm size, grower experience, market availability, and other major factors determining farm organizations. High water costs resulting from relatively low water tables in much of the area in Fresno, Kings, Kern, and Tulare counties will severely limit choice. Operators of small farms must seek high labor-consuming enterprises which will net a relatively high return per acre. They require such crops to market their own fixed labor supply and to obtain sufficient family income to maintain living standards. These factors affecting choice of alternatives are discussed more fully in the following section. Most producers are willing to experiment with new enterprises only on a limited scale. Therefore, the major portion of the released acreage will likely be diverted to enterprises with which the individual operators have had experience. Markets for many of the adapted specialty crops are limited by processor or shipper contract systems. Markets for others can absorb relatively small quantities before farm prices are depressed to unattractive levels.

How will the acreage to be released from cotton production in 1954 be utilized? No one can predict exactly what enterprises individual farmers will select and in what fashion these will be combined into farm organizations. Sufficient guideposts are available, however, for persons familiar with the agriculture of the area and the variations in organization among individual farms to prepare preliminary estimates of aggregate acreage shifts. These data at least will serve to emphasize the dimensions of the cotton allotment problem. The data presented below are the estimates of the authors alone. The basic assumption underlying these estimates is that the legislation now in existence will determine the national, state, and county allotments in 1954. Any change in legislation will necessarily change these data, possibly substantially. Specifically, it is assumed that there will not be regulations to limit the freedom of farmers in deciding how to use their diverted acres.

It is estimated that grain, alfalfa, and idle or fallow will absorb 547,000 acres, or 77 per cent of the land diverted from cotton (Table 9). Specialty crops, oil seeds, and sugar beets, are expected to account for another 86,000 acres--12 per cent. The remainder will be divided among

TABLE 9

Estimated Utilization of Diverted California Cotton Acreage, 1953 to 1954, Basis Legislation Effective December 31, 1953

County	Acres to be diverted	Small grains	Alfalfa	Grain sorghum	Sugar beets	Corn	Oil crops	Potatoes	Irrigated pasture	Idle	Miscellaneous crops
	thousand acres										
Merced	27	10	8	2	1	2	--	--	2	--	2
Madera	24	8	7	3	2	--	1	--	2	1	--
Fresno	195	100	18	7	6	3	15	--	4	35	7
Kings	82	38	10	3	1	1	5	--	1	18	5
Tulare	116	34	26	9	6	6	9	2	2	6	16
Kern	161	68	18	7	13	4	6	4	3	28	10
Total San Joaquin Valley	605	258	87	31	29	16	36	6	14	88	40
Imperial	70	15	11	10	5	--	14	--	1	6	8
Riverside	31	12	8	1	--	--	2	--	1	2	5
Total Southern California	101	27	19	11	5	--	16	--	2	8	13
Total 8 counties	706	285	106	42	34	16	52	6	16	96	53
Others	2	1	1	--	--	--	--	--	--	--	--
Total California	708	286	107	42	34	16	52	6	16	96	53

miscellaneous uses. If these preliminary estimates are borne out by farmer action, California feed grain and hay acreage in 1954 will be at record levels. Alfalfa would occupy about 1,133,000 acres as compared with 1,058,000 in 1950--the last previous cotton allotment year. Barley, for grain too, at 1,798,000 acres would exceed its previous high of 1,765,000 acres, also in 1950. Grain sorghum acreage, for grain about 147,000, would be the highest since 1946 when it occupied 145,000 acres. Among specialty crops, sugar beets are estimated at about 195,000 acres. Actually, they may possibly exceed their previous high of 219,000 acres in 1950. Oil seeds would be well down from earlier highs; it is not expected that flaxseed will regain its wartime prominence in southern California.

Estimated Pattern for 1954 Diverted Cotton Acres Resembles Record from 1950.--The estimates presented above are based upon analysis of all available statistics, from personal observation, and as the result of pooling the opinions of a wide range of farmers and agricultural workers. It is interesting to compare these estimates for 1954 with an analysis of experience in 1950 and in 1951 recently appearing in California Agriculture.[3/] This analysis undertakes to determine the use of 318,000 acres of cotton land diverted in 1950 in terms of the amount of acreage expansion in other crops in five counties; Fresno, Kern, Tulare, Kings, and Madera (Table 10). It further examines the record of changes from 1950 to 1951 when there were no acreage allotments, and cotton expanded 640,000 acres in the counties concerned. The five counties studied accounted for 95 per cent of the cotton acreage changes in 1950. The study indicates the expansion for a group of crops that collectively accounted for 295,000 acres as compared with 318,000 cotton acres diverted. Small grains, alfalfa, and grain sorghums were responsible for 68 per cent of the acre increases in 1950, while specialty crops, sugar beets and safflower, expanded enough to utilize another 8 per cent. It is interesting to note that the feed crops dominated the diverted-acre picture during this most recent cotton acreage allotment program in California. It is not reasonable, however, to look to the 1950 record for a precise pattern for that in 1954. Idle or fallow land is expected to absorb much more diverted cotton land in 1954. Certain crops

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[3/] Lee, Ivan M. Cotton Acreage Adjustment. University of California, California Agriculture, vol. 7, no. 6, June, 1953.

TABLE 10

Acreage Changes: Cotton and Competing Crops
Between 1949-50 and 1950-51 in the Five Counties
of Fresno, Kern, Tulare, Kings, and Madera a/

	1949-50	1950-51
	thousand acres	
Small grain b/	+135	-126
Alfalfa	+ 66	- 82
Corn (maize)	+ 18	- 17
Safflower	+ 18	- 14
Grain sorghum	+ 15	- 26
Melons	+ 15	- 6
Potatoes	+ 13	- 37
Sugar beets	+ 8	- 13
Grapes	+ 5	- 4
Irrigated pasture c/	+ 2	- 14
Total	+ 295	-339
Cotton	-318	+ 640

a/ Source: County Agricultural Commissioner Reports for all crops except cotton. Cotton from U.S. Bureau of Agricultural Economics, Crop and Livestock Reporting Service.

b/ Barley and wheat. Includes dry and irrigated acreage except for Kern County where only irrigated acreage is included.

c/ Reflects Tulare County only.

Source: Lee, Ivan M. Cotton Acreage Adjustment, University of California, California Agriculture, vol. 7, no. 6, June, 1953.

that were acceptable substitutes for cotton in 1950 are less likely to be considered favorably by farmers in 1954. The 1950 experience with safflower was unsatisfactory to many farmers, while experience with potatoes in 1953 is not likely to encourage any marked expansion of this crop in 1954.

Estimated 1954 Crop Acreages and Recent California Field Crop Acreage Trends.--It is important to arrive at some judgment regarding the effects on acreage and production of other California field crops if the diverted cotton acres are used as estimated above. This problem was examined, and data have been assembled to provide a preliminary indication of what will happen to acreage of the main California field crops in 1954, assuming that there are 708,000 acres to be diverted from cotton. Two new acreage records will be established--for barley and alfalfa--and the highest postwar acreage for grain sorghum will result assuming the diverted acreages are as a net addition to the 1953 acreage of these crops (Table 11). Total barley acreage for grain would amount to 1,798,000 acres under such circumstances (see Table 11). The highest previous acreage--1,765,000 in 1950--represented an increase of 175,000 acres over that of 1949. The authors' estimate for barley for grain in 1954 is derived by adding 241,000 acres to be diverted from cotton to the 1,567,000 harvested for grain in 1953. Both the 1950 acreage reported and that estimated for 1954 represent substantial gains over the normal acreage of barley cut for grain in California. The 1944-1953 ten-year average was 1,539,000. There is no evidence of a substantial upward trend in acreage of this crop in the data since 1945 (Table 11).

The estimated 1954 alfalfa acreage, 1,133,000 acres, is substantially above the 1950 level of 1,058,000 acres. Actually, the 1953 acreage is not far short of the 1950 level and adding the 107,000 estimated to be diverted from cotton puts the 1954 estimate at an all time high for this crop. The estimated 1954 acreage for other crops does not represent new records. If they materialize, however, they will exceed the ten-year average California acreage for all crops listed except grain hay and, of course, cotton which is subject to the acreage reduction. The acreage of grain hay, of course, is greatly affected by weather conditions.

Estimated Production in 1954 Under Alternative Cotton Acreage Reduction Levels.--The acres estimated to be diverted from cotton to alternative California farm crops may be expected to bring important increases in total 1954 production. Yields and total production have been estimated for major

TABLE 11

Total California Acreages 1945-1953: Selected Field Crops in San Joaquin and Southern Cotton-Growing Areas a/

Years	Barley grain	Oats grain	Grain hay	Alfalfa	Grain sorghum	Field corn	Sugar beets	Potatoes early	Cotton
	thousand acres								
1944-1953 average	1,539	176	623	987	100	70	140	70	794
1945	1,486	165	771	1,026	102	64	101	73	319
1946	1,486	190	678	1,005	145	67	135	81	359
1947	1,545	180	678	1,005	70	62	164	62	536
1948	1,622	185	522	925	116	65	187	80	810
1949	1,590	166	600	962	71	65	150	66	931
1950	1,765	196	570	1,058	114	81	219	78	586
1950-1949 b/	175	30	- 30	- 96	43	16	69	12	- 345
1949	1,412	163	513	931	65	69	148	49	1,331
1952	1,497	170	590	959	95	78	161	60	1,400
1953	1,557	175	555	1,026	105	78	161	82	1,396
1954-1953 c/	241	10	35	107	42	16	34	4	- 698
1954 d/	1,798	185	590	1,133	147	94	195	86	698

a/ Source: Reported Acreages USDA, BAE, Crop and Livestock Reporting Service; Estimated acreages 1954 and changes calculated by authors.

b/ Changes in state total acreage.

c/ Estimated changes in cotton counties only, no estimate attempted other areas.

d/ Estimated state totals with 50 per cent reduction in cotton acreage from 1953.

California field crops grown in the cotton counties under two possible cotton allotments; 50 and 27½ per cent reductions, respectively, from 1953. The yields estimated to prevail under a 50 per cent reduction in cotton acreage may be examined in comparison with the ten-year average yield (1944-1953) 1950 and 1953 yields (Table 12). Cotton yields are estimated at 750 pounds of lint per acre or somewhat below the yield for the previous cotton allotment year, 1950, but above both the ten-year average and the 1953 estimates. Such a yield with a California acreage allotment of 698,000 acres would result in slightly less than 1,100,000 bales of cotton. This figure would be 630,000 bales below the 1953 estimate. Barley production, with 50 per cent of the cotton acreage diverted, would exceed 1953 by 3.7 million 100-pound sacks or 15 per cent. Alfalfa hay with a total production of almost 5,000,000 tons would be 368,000 or 8 per cent above the 1953 reported production (Table 12). The estimated increase in grain sorghum production, 927,000 hundred-pound bags or 37 per cent above 1953, also is worthy of note. All other of the alternative crops listed show important increases in production if the estimates on diverted acres are reasonably correct and if yields are in the range indicated. It may be readily assumed that similar relationships would exist for other crops considered as possible alternatives for cotton. A number of such crops such as oil seeds, melons, and other vegetable crops occupy a relatively small acreage in comparison with such major field crops as those listed here. Only a small proportion of the total acres to be diverted from cotton can be absorbed by any one or the total of these crops without bringing on such levels of production as to create serious marketing problems.

The impact on production of other crops would be much less if the cotton acreage is reduced 27.5 rather than the full 50 per cent. Cotton yields are estimated at 700 pounds of lint to the acre on approximately 1,000,000 acres or about 1½ million bales. Barley production would be about 2½ million sacks or 10 per cent above 1953, and alfalfa up 238,000 tons or about 5 per cent. The increase in grain sorghum is estimated to be less than half what it would be under the 50 per cent cotton acreage cut (Table 12).[4]

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[4] The impact of the 27½ per cent cut compares closely with that to be anticipated from the cut involved in the January 7, 1954 proposal by the chairman of the Senate Agriculture Committee for changes in legislation and cotton allotments.

TABLE 12

Estimated California Production Selected Field Crops Under Alternative Levels Cotton Acre Limitations: 1953 (No Limitations), Fifty Per Cent Diverted, Twenty-seven and One-half Per Cent Diverted a/

	Yields			Cotton acre reduction 50 per cent (708,000 acres)			Net production changes from 1953	
	10-year average 1944-1953	1950	1953	Acres b/	Yield b/	Production b/	1953 Production	At 50 per cent reduction b/
Cotton (lbs) c/	630.0	805.0	593.0	697,800	750.0	1,095,000	1,725,000	- 630,000
Barley (cwt)	15.1	16.3	16.1	1,798,000	16.0	28,768,000	25,037,000	3,731,000
Oats (cwt)	9.4	10.2	10.0	185,000	10.0	1,850,000	1,736,000	114,000
Grain sorghum (cwt)	22.2	23.0	24.1	147,000	23.5	3,455,000	2,528,000	927,000
Field corn (cwt)	18.7	19.0	20.2	94,000	19.5	1,833,000	1,572,000	261,000
Alfalfa (ton)	4.5	4.7	4.5	1,133,000	4.4	4,985,000	4,617,000	368,000
Sugar beets (ton)	18.1	18.8	19.0	195,000	18.5	3,608,000	3,059,000	549,000
Potatoes (cwt)	240.0	240.0	240.0	86,000	240.0	2,064,000	1,968,000	96,000

	Yields			Cotton acre reduction 27.5 per cent (391,900 acres)			Net production changes from 1953	
	10-year average 1944-1953	1950	1953	Acres b/	Yield b/	Production b/	1953 Production	At 27.5 per cent reduction b/
Cotton (lbs) c/	630.0	805.0	593.0	1,012,100	700.0	1,482,000	1,725,000	- 243,000
Barley (cwt)	15.1	16.3	16.1	1,724,000	16.0	27,584,000	25,037,000	2,547,000
Oats (cwt)	9.4	10.2	10.0	181,000	10.0	1,810,000	1,736,000	74,000
Grain sorghum (cwt)	22.2	23.0	24.1	125,000	23.5	2,938,000	2,528,000	410,000
Field corn (cwt)	18.7	19.0	20.2	78,000	20.2	1,572,000	1,572,000	--
Alfalfa (ton)	4.5	4.7	4.5	1,079,000	4.5	4,855,000	4,617,000	238,000
Sugar beets (ton)	18.1	18.8	19.0	193,000	18.5	3,570,000	3,059,000	511,000
Potatoes (cwt)	240.0	240.0	240.0	82,000	240.0	1,968,000	1,968,000	--

a/ Sources: Reported yields and production, USDA, BAE, Crop and Livestock Reporting Service, estimates and net changes calculated by authors.

b/ Estimated by authors.

c/ Production in 500-pound gross weight bales.

It may be concluded that the probable impact of the cotton acreage reduction program will be to stimulate production of alternative crops and result in marked supply increases. The price impactof these increased supplies will vary widely and depend upon a considerable number of factors. Grain, such as barley, for which a price support program is in effect should undergo relatively less downward pressure on prices as a result of increased supply provided adequate approved storage is available. Such approved storage may not be available in many localities. In such local situations farmers cannot benefit fully, and the effect of price supporting programs will be minimized. Prices may fall relatively sharply under such circumstances. Alfalfa producers are particularly vulnerable. Their product is bulky, which makes it expensive either to store or to transport to other less surfeited markets. A relatively close balance, historically, is maintained between alfalfa production and consumption. An 8 per cent increase probably is adequate to bring a very sharp price repercussion. It is important to note that alfalfa prices in 1953 were sharply lower than for recent previous seasons. It also is worthy of note, relative to a number of the specialty crops, that effective marketing frequently depends upon contracts. It is extremely hazardous, therefore, to plan any substantial acreage of such crops unless the market outlet has been assured.

Price Relationships Upon California Major Field Crops.--Prices for the more important California field crops trended upward from 1940 through 1952 with the exception of 1948 and 1949 and, for certain crops, 1950 (Table 13). These data indicate that the postwar price-strengthening influences had about exhausted themselves in 1947. A definite downward trend then began but was interrupted by the price stimulus of the Korean War. This stimulus, in turn, lost its effect by the end of 1952, and 1953 prices again were sharply lower. It should be recognized that accurate measurement of 1953 price levels will not be possible until seasonal averages have been reported. The data presented here are preliminary simple averages of monthly price data calculated by the authors. Even though the 1953 averages are not comparable with the marketing season averages, it will come as no news to farmers that they do show a downward adjustment in farm prices received. These trends are readily recognized when the actual farm prices are converted into relatives for each of which the average prices received by farmers during the years 1940 to 1944 equals 100 per cent (Table 14). One of the

TABLE 13

California Seasonal Average Prices Selected Field Crops, 1940-1953 a/

	Barley	Oats	Grain sorghum	Field corn	Alfalfa hay	Grain hay	Sugar beets	Potatoes early	Cotton	U.S. index prices paid by farmers
	dollars per hundredweight				dollars per ton			dollars per hundredweight	cents per pound	1910-1914=100 per cent
1940	.83	.97	1.09	1.55	9.60	8.90	6.91	1.25	11.97	124
1941	1.44	1.56	1.50	1.79	14.70	12.00	8.06	1.08	17.31	132
1942	1.42	1.78	1.70	2.23	19.50	17.30	9.82	2.00	19.19	151
1943	2.29	2.59	2.64	2.55	23.80	20.60	12.61	2.42	20.31	170
1944	2.27	2.59	2.09	2.43	24.00	22.90	13.18	2.33	20.89	182
1940-1944 average	1.65	1.90	1.80	2.11	18.32	16.34	10.12	1.82	17.93	152
1945	2.17	2.53	2.66	2.54	23.70	22.20	13.46	2.67	22.12	189
1946	2.98	3.16	2.79	3.04	28.40	25.80	13.66	2.08	30.94	207
1947	3.23	3.59	4.18	4.98	24.60	24.40	14.53	2.67	33.31	239
1948	2.71	3.16	2.66	3.11	27.70	27.50	13.21	2.58	31.35	259
1949	2.33	2.62	2.55	2.75	22.50	22.00	13.44	2.25	28.17	250
1950	2.54	2.78	2.64	3.34	19.70	19.30	12.96	1.75	41.25	255
1951	3.15	3.47	3.30	3.88	30.40	28.80	14.11	2.33	39.25	281
1952	3.33	3.56	3.45	3.66	31.50	29.70	14.66	3.92	35.90	287
1953 b/	2.72	3.09	3.05	3.41	19.88	--	--	1.30	32.20	277

a/ Sources: Reported data, USDA, BAE, Crop and Livestock Reporting Service; estimates, price relatives, and ratios by authors.

b/ Simple means of July-October reported prices, calculated by authors.

reasons why cotton has attained such a pre-eminent position in California agriculture is evident from these relatives. Cotton since 1948 has been relatively higher compared with the base period 1940-1944 than the other main crops in California cotton counties. This price advantage of cotton is particularly evident during the years 1950-1952. Even in 1953, thanks to the support at 90 per cent of parity, cotton still maintains an advantage.

This over-all price picture, particularly the relationship between cotton prices and those for other chief California farm products, may be further examined by expressing each of the price relatives as a ratio to the U.S. index number of prices farmers paid--the so-called parity index--also on a 1940-1944 base. This index went up steadily during the period 1940-1953, the decline being checked only in 1949 and 1950 which were lower than 1948, and again in 1953, slightly down from 1952 (see Table 14). When these annual averages for the index of prices paid are divided into the individual annual price relatives it is possible to measure how the price for the individual farm product has changed from the base period as compared with the amount of change in the index of prices paid. Thus, in 1950 alfalfa hay prices show a ratio of .64 to the index of prices paid. This means that the prices-paid index is about 50 per cent higher, compared with the base period (1940-1944), than alfalfa hay. It will be noted also that the ratio for early potato prices to the index of prices paid is slightly lower than that for alfalfa hay. This means that producers of these two commodities in 1950 were seriously disadvantaged in comparison with producers of the other principal California field crops in the cotton counties. The preliminary estimates by the authors for 1953 prices again show the same general relationships. It is noted, however, that in 1953 cotton prices did not have as sharp an advantage as they previously had enjoyed, compared with other field crops. The rise in cotton prices is substantially the same as that for the index of prices that farmers paid (Table 14). The 1953 drop in alfalfa hay prices again has put hay producers in a disadvantaged position. The grain growers, on the other hand, in 1953 still are situated relatively favorably, even though their prices are relatively lower than during much of the period from 1940 to 1952. There are two other aspects of prices for such California field crops as serve as raw materials for producing meat and livestock products. It is necessary to examine the extent to which the relatively lower prices for these feed

TABLE 14

California Price Relatives and Ratios of Price Relatives to U.S. Index Numbers of Prices Farmers Paid, 1940-1953, (Average 1940-1944=100)

	Barley	Oats	Grain sorghum	Field corn	Alfalfa hay	Grain hay	Sugar beets	Potatoes early	Cotton	U.S. index prices paid by farmers
Price relatives (1940-1944=100)										
1940	50	51	60	73	52	54	68	69	68	82
1941	88	82	83	85	80	73	80	59	97	87
1942	86	94	94	106	106	106	97	110	107	99
1943	139	136	147	121	130	126	125	133	113	112
1944	138	136	116	115	131	140	130	128	117	120
1945	132	133	148	120	129	136	133	147	123	124
1946	181	166	155	144	155	158	135	114	173	136
1947	196	189	232	236	134	183	144	147	186	157
1948	164	166	148	147	151	168	130	142	175	170
1949	141	138	142	130	123	135	133	124	157	164
1950	154	146	147	158	108	118	128	96	230	168
1951	191	183	183	184	166	176	139	128	219	185
1952	202	187	192	173	171	182	145	215	200	189
1953	165	163	169	162	108	--	--	71	180	182
Ratios of Price Relatives to U.S. Index Numbers of Prices Farmers Paid (1940-1944=100)										
1940	.61	.62	.73	.89	.63	.66	.83	.84	.83	82.
1941	1.01	.94	.95	.98	.92	.84	.92	.68	1.11	87
1942	.87	.95	.95	1.07	1.07	1.07	.98	1.11	1.08	99
1943	1.24	1.21	1.31	1.08	1.16	1.13	1.12	1.19	1.19	112
1944	1.15	1.13	.97	.96	1.09	1.17	1.08	1.07	.98	120
1945	1.06	1.07	1.19	.97	1.04	1.10	1.07	1.18	.99	124
1946	1.33	1.22	1.13	1.06	1.14	1.16	.99	.84	1.27	136
1947	1.25	1.20	1.48	1.50	.85	1.16	.92	.94	1.18	157
1948	.96	.98	.87	.86	.89	.99	.76	.84	1.03	170
1949	.86	.84	.86	.79	.75	.82	.81	.76	.96	164
1950	.92	.87	.88	.94	.64	.70	.76	.57	1.37	168
1951	1.03	.99	.99	.99	.90	.95	.75	.69	1.18	185
1952	1.07	.99	1.02	.92	.90	.96	.77	1.14	1.06	189
1953	.91	.90	.93	.89	.59	--	--	.39	.99	182

crops will make it profitable to expand livestock and hence, will encourage such expansion. Also important, on the other hand, is the extent to which expanded livestock production may tend to strengthen feed crop prices. These considerations will be treated in a later section.

IV. Effects of Cotton Acreage Allotments on California's Cotton Farmer

Reduced net farm incomes for California's cotton farmers will result from transferring cotton acreage to less profitable alternative uses. The data on price relatives presented in the previous section indicate this income reduction to be unavoidable. Some cotton producers are interested in specialty crops which they consider will provide comparable net incomes but price and/or production uncertainty are likely to be high for such alternatives.

What producers do with their acreage to be diverted will depend primarily on their estimates of the duration of the acreage restriction program. If they expect controls for only one year then they likely will shift to alternative cash crops with little regard for ultimate use of the products. However, if California cotton farmers anticipate that cotton acreage restriction will continue more or less regularly over a period of several years they will be forced to turn attention to converting feed crops and crop aftermath to higher valued products--meat and livestock products.

The impact of acreage allotments on California's cotton farmers will depend on the alternatives available to the individual farmer. The adaptability and profitableness of such alternatives vary from area to area and farm to farm because of physical, economic, and institutional factors. Differences in soils, water availability, temperature characteristics, and pests and diseases are the principal physical factors determining what alternatives are profitable. Market availability, expected prices, operator's debt position and available capital are important economic determinants for choosing alternatives. Size of farm, the operator's tenure, and his experience are some of the institutional factors that will be very important forces in shaping specific farm organizations.

Any evaluation of the impact of allotments on individual cotton farmers must take into account the variations which exist in the forces determining enterprise choice. One group of factors influencing choice of alternatives is closely related to geography, hence the cotton producing area can be divided into four fairly homogeneous regions. Probable production shifts, the effect of these shifts on use of farm and area resources, and the impact on gross costs and returns, and net returns can be examined in terms of these four regions.

Choosing Alternative Enterprises in Four Geographic Regions.--The two northern cotton counties--Merced and Madera--form a unique area. Livestock enterprises have been the foundation of farm organization in these counties for several decades. Crop production is oriented largely to the livestock enterprises with a small acreage devoted to one or at the most two cash crops for additional income. These livestock enterprises were maintained very well during the years of cotton expansion. The production of feed grains, alfalfa, and pasture in these two counties on an estimated 85 per cent of the 51,000 acres to be diverted from cotton in 1954 indicates that significant expansion of dairying and feeding operations will take place. Cheaper feed in abundant quantities and the relatively low investments required to enlarge existing livestock enterprises should favor this expansion. While less investment per head of livestock is required for those expanding existing operations the total capital requirement will, nevertheless, be increased.

Livestock expansion in 1954 is much more likely to materialize in the Merced-Madera area than in any other of the San Joaquin Valley cotton districts. Cash crop alternatives are not attractive in this two-county area.

Feed producing crops--grains, pastures, and alfalfa--are well adapted to the soil, climatic and topographic features of this northern cotton area. Water, while not abundant in all parts of these counties, is available in sufficient quantity and at a cost which will permit expanding these crops. The grains, if irrigated at all, will require less than 2 acre-feet of water; the alfalfa and pasture from 4 to 7 acre-feet depending primarily on soil type. These requirements compare with approximately 3 acre-feet now applied to cotton.

Examining only the shift to crops other than cotton, one might conclude that the diverted land, labor, and capital resources of Madera-Merced cotton farms are to be devoted to less intensive uses and, therefore, that the earnings of these resources may be drastically reduced. This conclusion is not correct, however, since the possibility of expanding livestock enterprises on these farms, in conjunction with greater feed production may well offset any reduction in returns. In some cases it is possible that annual returns to these factors, particularly labor, may be increased significantly over what accrued with a major portion of the farm in cotton.

A much broader range of alternative crops is available to farm operators in central and southeastern Fresno County, Tulare County, eastern Kings County, and northern Kern County, but income reductions probably will be as

great as in the north. Growers in this east central region of the San Joaquin Valley are experienced in a variety of crops including vegetables and fruits, field corn, and other specialties. As a result cash grains and alfalfa are expected to absorb less than half of the diverted acreage compared with an estimated 60 per cent for the entire acreage to be diverted in the State.

Greater diversification, however, does not preclude reduced net incomes. On the contrary, the types of alternatives with which these producers are experienced can undergo only limited expansion if very low prices are to be avoided. Furthermore, though yields of all crops tend to be high, the excellent cotton yields combined with favorable prices make for quite wide net income differences favoring cotton when this crop is compared with alternative cash crops. It is possible, therefore, that the reduction in net income per acre of diverted land here may exceed that expected in the northern counties.

Some livestock is present in this portion of the San Joaquin Valley and some expansion may come on those farms already including livestock. If so, it will result from increased on-farm feed supplies and the operator's belief that this feed can be marketed most profitably through livestock.

An analysis of resource use on these farms is difficult because of the wide variation in physical features of the farms, and in enterprises chosen. Shifts to specialty crops such as vegetables and fruits can result in more complete utilization of available labor supplies and, under conditions of double cropping, can increase the returns to land. Water lifts in some portions of this region, however, will seriously restrict the range of alternative enterprise selection. Comparative utilization of equipment will depend on alternatives chosen, but, except for some specialty crops requiring frequent cultivation, the annual use of common farm equipment and power units will decline as acreage is shifted from cotton. This crop requires approximately 8 tractor hours per acre, as compared with as low as 1.5 tractor hours per acre for adapted alternatives. Annual use of specialized cotton equipment such as mechanical cotton pickers is expected to decline somewhat less than in proportion to the acreage reduction since mechanical pickers will pick an even greater part of the total acreage in 1954 unless hand picking costs decline greatly.

The nature of the adjustment which must be made by west Fresno, Kings, and southern Kern counties' cotton producers is in sharp contrast to those in both areas previously discussed. Large holdings of leased lands under which the water table has steadily declined complicate the adjustment problem. Profitable alternatives to cotton among the irrigated crops are extremely limited, and income reduction on these farms will likely be marked.

Alfalfa, pasture, irrigated grains, and oil crops can not support the costs of pumping water along with other production expenses over a substantial portion of this region. Nonirrigated cash grain, while a poor alternative, is probably the only alternative other than leaving the land idle or summer fallowing.

With reduced feed grain prices likely and yields relatively low on the nonirrigated grain lands of the San Joaquin Valley, both gross and net per acre incomes will fall substantially. Producers, even though not burdened with high cash rents or heavy indebtedness, will suffer a loss in income and a much lower return on their invested capital.

Livestock will be increased in total numbers in this region but the increases are expected where livestock feeding or dairy operations are already in existence.

A general shift to a more extensive type agriculture over the region as a whole will typify the adjustment of the western and southern San Joaquin if cotton allotments are continued. It is in this region that the authors anticipate at least 75,000 acres of idle and fallow land in 1954. Utilization of all resources is expected to decline in nearly direct proportion to the acreage diverted from cotton since nearly all visible alternatives require only limited quantities of labor, capital, and equipment inputs. Some exceptions must be made; a few large operations, limited in number, produce and pack such products as cantaloupes.

The southern California cotton counties--Riverside and Imperial--expanded their cotton acreage sharply from 1950 to 1953. Partly because this shift was both recent and abrupt and also because of the climatic conditions in the winter months, the impact of the adjustment on individual producers may not be as severe as on producers north of the Tehachapi, particularly on the west side of the valley. Alfalfa and small grains are expected to replace nearly 50 per cent of the diverted cotton acreage. Such historically important crops as flaxseed, grain sorghums, and the vegetable and melon crops, however, will be important alternatives for individual farmers.

An accelerated expansion of livestock on farms in the two southern cotton counties is anticipated, particularly if cotton allotments extend over two or more years. Feed availability, new feeding techniques, and new information on handling cattle in the summer climate should further encourage livestock production on farms in this area where many farmers are experienced in feeding beef cattle. Experience and location will determine to a large extent alternative enterprises that individual producers in the Coachella, Palo Verde, and Imperial Valleys will choose.

Reduced net incomes per acre are almost certain except in those areas where double cropping of specialty high value (and, incidentally, high risk) crops can be practiced. Statements concerning resource utilization are particularly difficult with respect to this area for reasons similar to those given for the Tulare, eastern Fresno, and northern Kern County area. Other factors must be considered before final conclusions regarding the impact of cotton allotments on individual farm operations can be reached.

Farm Size and Alternative Enterprise Choice.--The range of alternatives available to the farmer operating a cotton farm with a total of 160,320 or more cultivated acres is considerably greater than for the person operating 20 or 40 acres, other things being equal. There are two primary reasons for this difference. First, the operator of the small farm desires to derive an income from his farming operation sufficiently high to maintain his family living standard or at least to minimize any reduction. Secondly, the operator as the major source of labor on that farm, must provide employment in order to market his labor through the products of the farm. If both needs are to be satisfied the operator of the small farm must select alternatives to cotton which (a) promise to yield relatively high net returns per acre, and (b) will utilize a large part of his labor. Such a farmer, therefore, will favor intensively cultivated crops rather than barley, alfalfa, and pasture. Idle or fallow land certainly will not be an acceptable alternative for cotton on the small farm.

A comparison of the earnings and employment offered by several alternative organizations on a 40-acre cotton farm with assumed cotton acreage reduction emphasizes the problem of reduced earnings and employment with changes in farm organization. Using adjusted 1953 cost-price relationships, typical yields and production practices, three types of organization are compared with a 1953 organization (Table 15). In all three alternatives, cotton acreage has been reduced to 15 acres from the 25 cultivated in 1953.

TABLE 15

Comparative Employment and Earnings on a Typical 40-Acre Cotton Farm with Alternative Organizations, Adjusted 1953 Cost-Price Relationships

Organization		Production	Price	Gross receipts	Gross expenses[a]	Gross receipts less gross expenses		Annual employment and labor returns to the operator		Total returns to the operator
						Total	Per acre	Hours of field work	Labor returns at going rates	
			dollars					hours	dollars	
1953										
Cotton	25	50 bales	158	7,900 [b]	5,000	2,900	116	700	700	3,600
Potatoes	10	2,700 cwt	1.75[c]	4,725	4,500	225	22.50	330	330	555
Milo	5	10 tons	65	650	225	425	85	50	50	475
				13,680	9,725	3,550	88.75	1,080	1,080	4,630
1954 (I)										
Cotton	15	30 bales	158	4,740	3,000	1,740	116	420	420	2,160
Potatoes	10	2,700 cwt	1.75	4,725	4,500	225	22.50	330	330	555
Sugar beets	15	240 tons	14.20	3,408	2,100	1,308	87.20	360	360	1,668
				12,873	9,600	3,273	81.82	1,110	1,110	4,383
1954 (II)										
Cotton	15	30 bales	158	4,740	3,000	1,740	116	420	420	2,160
Potatoes	10	2,700 cwt	1.75	4,725	4,500	225	22.50	330	330	555
Barley	15	300 cwt	2.60	780	720	60	4.00	150	150	210
				10,245	8,220	2,025	50.62	900	900	2,925
1954 (III)										
Cotton	15	30 bales	158	4,740	3,000	1,740	116	420	420	2,160
Barley	25	500 cwt	2.60	1,300	1,200	100	4.00	250	250	350
				6,040	4,200	1,840	46.00	670	670	2,510

a/ Includes payments to operator for his labor at going rates.

b/ Seed return offset by ginning expenses.

c/ Adjusted upward from 1953 level.

Yields, prices, costs, practices, and the size of the cotton allotment have all been held constant to focus attention on the earnings changes which result from various uses of the diverted acreage.

With the assumed organization on this 40-acre farm for 1953, the operator received $4,630 for the year, about 22 per cent of that return as wages for the nearly 1,100 hours of actual field labor he performed. With 10 acres less cotton, no milo, and the introduction of 15 acres of sugar beets, the annual return to the operator declines about $250. Substituting a high labor-consuming crop marketable under conditions of a firm contract reduces considerably the repercussions of the cotton acreage cut. This represents a favorable adjustment, but it assumes that the operator is able to arrange a contract for the sugar beet crop.

Assuming no contract for sugar beets or a comparable crop, organization 1954 (II) illustrates the impact of an extensive crop like barley on the earnings of the farm. With 15 acres of barley and no sugar beets, the returns to the operator fall to less than $3,000. The barley crop returns only $60 above the $150 in labor earnings the operator derives from its production. Omitting the 10 acres of potatoes and shifting to a two-crop organization of barley and cotton, the total returns decline to only $2,510! Estimated employment hours decline to 670 bringing labor earnings to a level 40 per cent below that of organization 1954 (I). These data, while hypothetical, serve to illustrate the effect of shifts from cotton to enterprises with lower labor requirements and earning capabilities on small farms.

A similar problem faces the tenant farmer when cotton allotments are invoked, particularly where he is committed to a cash rental payment. Operators with heavy fixed expenses will also have to turn to similar alternatives in hopes of receiving returns large enough to meet these fixed expenses.

Farm Tenure, Indebtedness and Adjustments to Cotton Allotments.--Tenants committed to high cash rentals will be forced to shift to alternatives with the greatest promise for high returns per acre. In those areas where a broader range of alternatives are available the burden of adjustment may be somewhat lessened. In instances where the cotton allotment is not too severely cut, earnings from cotton can bear a disproportionate share of the rental payment particularly if the operation is of sufficient size that there is still a residual sufficient to maintain the farm operator and his family.

In cases where the farm either is relatively small itself or has a relatively small cotton allotment in terms of total acreage, the allotment program is particularly dangerous to the survival of the business. Such conditions may mean that the cotton earnings cannot support the rental on the whole farm and still return the operator a sufficient living income for himself and family. In such cases either the operator finds an alternative which can be produced and sold at a profit in a guaranteed market, suffers a loss in the present year and lives from his capital reserve (assuming he has one), or goes out of business. Fortunately, there are not too many farm operators in the last category. Severe reductions in subsequent years, however, would very soon increase this number.

Tenants committed to share lease contracts will be better protected particularly if the leases provide for sliding-scale rental payments varying with market prices received for the products. However, if these leases specify strictly what shall be planted, as many do, then the farm operator could experience grave difficulty in avoiding extremely low earnings. In general, share tenants are in a better position to adjust to allotments than are those on cash rentals.

A comparison of per acre returns on cotton and alternative enterprises, based on hypothetical data typical of the four geographic areas discussed earlier emphasizes the problem faced by tenant farmers both on cash and share rental contracts. Per acre returns to the cash tenant above his rent for alfalfa and barley are either very low or negative in all of the areas (Table 16). Sugar beets show positive returns but production of this crop on any farm depends on contract availability. Other enterprises could have been included in this comparison but these four illustrate the impact of allotments on the tenant farmer whether he be a cash or share renter. Where tenants have rental rates lower than the $40 or $50 included here, their returns will be correspondingly higher. Yet, from an examination of the returns to the owner where an allowance for taxes is included as an expense, it is evident that tenants will be hard pressed to find alternatives to cotton that will pay their own way.

The adjustment problem facing partial-owners is much the same as that facing the tenant. A farmer making payments on his farm is committed under a long-term contract to make fixed annual or semi-annual payments to the lending agency. While payments can often be deferred during emergencies, the partial owner is usually not in a position where he can terminate his

TABLE 16

Typical Comparative Returns Per Acre for Four Enterprises in the Major Cotton Areas of California by Systems of Tenure; Adjusted 1953 Cost-Price Relationships

Area and Tenure	Enterprises											
	Cotton a/			Alfalfa b/			Barley c/			Sugar beets d/		
	Gross receipts e/	Gross expenses f/	Receipts less expenses	Gross receipts e/	Gross expenses f/	Receipts less expenses	Gross receipts e/	Gross expenses f/	Receipts less expenses	Gross receipts e/	Gross expenses f/	Receipts less expenses
	dollars											
(I) Madera-Merced												
Owner	230	158	72	140	92	48	52	45	7	213	137	76
Cash Tenant	230	211	19	140	137	3	52	90	-38	213	182	31
Share Tenant	172	157	15	105	87	18	39	41	- 2	170	132	38
(II) East Fresno, Tulare East Kings, Northern Kern												
Owner	368	161	207	160	109	51	52	51	1	227	141	86
Cash Tenant	368	206	162	160	153	7	52	98	-46	227	186	41
Share Tenant	276	150	126	120	103	17	39	--	--	170	136	34
(III) West Fresno, Kings, Southern Kern												
Owner	276	151	125	140	110	30	26	21	5	--	--	--
Cash Tenant	276	191	85	140	145	- 5	26	58	-32	--	--	--
Share Tenant	207	147	60	105	105	--	20	18	2	--	--	--
(IV) Riverside, Imperial												
Owner	276	175	101	120	93	27	52	40	12	241	180	61
Cash Tenant	276	211	65	120	139	-19	52	86	-34	241	226	15
Share Tenant	207	156	51	90	89	1	39	36	3	181	176	4

a/ Cotton yields: (I) 1.25 bales, (II) 2.0 bales, (III) 1.5 bales, (IV) 1.5 bales.

b/ Alfalfa yields: (I) 7 tons, (II) 8 tons, (III) 7 tons, (IV) 6 tons.

c/ Barley yields: (I) 20 cwt.irrig., (II) 20 cwt.irrig., (III) 10 cwt.dry, (IV) 20 cwt.irrig.

d/ Sugar beet yields: (I) 15 tons, (II) 16 tons, (IV) 17 tons.

e/ Excluding value of crop going to owner under terms of share rentals. Shares as follows: Cotton 1/4 in all areas, Alfalfa 1/4 in all areas, Barley 1/4 share in all areas, Sugar beets 1/5 in (I), 1/4 in (II) and (IV).

f/ Including all labor charged at going rates and depreciation, rent or taxes, materials, services, and interest. Cash rent $50 per acre except $40 in (III).

agreement at the end of one or two seasons and move off the place without severe capital losses. Long-term loans with low annual payments permit the most ready adjustment. A sizeable portion of land area affected by allotments, however, has loans of shorter duration and these credits cover capital improvements as well as land. In such cases the payments are substantial. Operators who have retired their indebtedness during the past few years of relatively high earnings will be less affected by the allotments.

For the operator owning his property, the allotment program has unpleasant prospects in terms of earnings for next year or even for four or five years. The threat to survival of his business, however, is relatively minor. Where the cash tenant must pay $30 to $50 for the use of an acre of land, the owner may have a tax bill of $4 to $6 which (1) can be deferred for a period with interest payments or (2) can be paid with funds borrowed on the property. Sufficient earnings to meet this expense can be obtained by most farm owners.

Other types of indebtedness can complicate the operator's task of adjusting to cotton allotments. Payments on installment loan contracts for farm equipment, buildings, or other improvements may be difficult to meet during periods of reduced earnings. Such loans usually are written for short periods and, therefore, involve relatively high payments. Lending agencies require payments for expensive equipment to be completed long before it becomes unserviceable or obsolete. For example, the purchase contracts for mechanical cotton pickers usually call for one-third down, one-third at the end of the first season of use and one-third at the end of the second season. If purchased at the beginning of a season this could mean retiring an obligation of more than $10,000 in 15 to 18 months.

The impact of fixed indebtedness on the financial position of the farm business when earnings vary sharply from year to year can bring financial failure regardless of size. A comparison of gross income, under two levels of yield, with fixed real estate and equipment costs typical of those found on cotton farms of these sizes and the estimated operating expenses typical of the organizations and sizes has been made to illustrate this problem. These data indicate how quickly organization changes from high return to low return crops can reduce the amount of money available to meet fixed costs and family living expenses (Tables 17 through 20). In making these calculations total real estate loans varied from $200 to $170 per acre to be repaid in 10 years with interest at 3½ per cent. Equipment loans were

TABLE 17

Comparative Gross Income, Fixed Cash Expenses, and Net Return for Operating Expenses and Family Income: 80-Acre Farm by Organization and Yield, Adjusted 1953 Prices and Costs

Organization	Gross income		Principal and interest on real estate	Principal and interest on equipment	Net for operating and living expenses		Estimated operating expenses		Net for family living expense and income tax	
	Yield Level I	Yield Level II			Yield I	Yield II	Yield I	Yield II	Yield I	Yield II
	dollars									
I Cotton 2/3 Alfalfa 1/3	18,804	24,638	1,928	2,497	14,379	20,213	10,078	11,492	4,301	8,721
II Cotton 1/2 Alfalfa 1/4 Potatoes 1/4	20,826	26,044	1,928	2,497	16,401	21,619	16,160	17,620	241	3,999
III Cotton 1/3 Alfalfa 1/3 Potatoes 1/3	20,176	24,606	1,928	2,497	15,751	20,181	17,712	19,179	-1,961	1,002
IV Cotton 1/3 Alfalfa 1/3 (Irrig) Barley 1/3	12,675	16,346	1,928	2,497	8,250	11,921	7,631	8,592	619	3,329
V Cotton 1/4 Alfalfa 1/4 Barley (dry) 1/2	9,282	11,980	1,928	2,497	4,857	7,555	5,580	6,280	- 723	1,275
VI Cotton 1/4 Barley (dry) 3/4	6,984	9,205	1,928	2,497	2,559	4,780	4,180	4,540	-1,621	240

TABLE 18

Comparative Gross Income, Fixed Cash Expenses, and Net Return for Operating Expenses and Family Income: 160-Acre Farm by Organization and Yield, Adjusted 1953 Prices and Costs

Organization	Gross income		Principal and interest on real estate	Principal and interest on equipment	Net for operating and living expenses		Estimated operating expenses		Net for family living expense and income tax	
	Yield Level I	Yield Level II			Yield I	Yield II	Yield I	Yield II	Yield I	Yield II
	dollars									
I Cotton 2/3 Alfalfa 1/3	37,622	49,298	3,663	4,280	29,679	41,355	19,308	22,242	10,371	19,113
II Cotton 1/2 Alfalfa 1/4 Potatoes 1/4	41,653	52,088	3,663	4,280	33,710	44,145	31,000	33,960	2,710	10,185
III Cotton 1/3 Alfalfa 1/3 Potatoes 1/3	40,377	49,233	3,663	4,280	32,434	41,290	34,047	36,980	- 1,613	4,310
IV Cotton 1/3 Alfalfa 1/3 (Irrig) Barley 1/3	25,318	32,652	3,663	4,280	17,375	24,709	14,609	16,581	2,766	8,128
V Cotton 1/4 Alfalfa 1/4 Barley (dry) 1/2	18,564	23,959	3,663	4,280	10,621	16,016	10,680	12,770	- 59	3,246
VI Cotton 1/4 Barley (dry) 3/4	13,968	18,409	3,663	4,280	6,025	10,466	8,000	8,760	- 1,975	1,706

TABLE 19

Comparative Gross Income, Fixed Cash Expenses, and Net Return for Operating Expenses and Family Income: 320-Acre Farm by Organization and Yield, Adjusted 1953 Prices and Costs

Organization	Gross income		Principal and interest on real estate	Principal and interest on equipment	Net for operating and living expenses		Estimated operating expenses		Net for family living expense and income tax	
	Yield Level I	Yield Level II			Yield I	Yield II	Yield I	Yield II	Yield I	Yield II
	dollars									
I Cotton 2/3 Alfalfa 1/3	75,229	98,575	6,941	5,707	62,581	85,924	37,758	43,625	24,823	42,299
II Cotton 1/2 Alfalfa 1/4 Potatoes 1/4	83,306	104,177	6,941	5,707	70,658	91,529	60,720	66,560	9,938	24,969
III Cotton 1/3 Alfalfa 1/3 Potatoes 1/3	80,729	98,444	6,941	5,707	68,081	85,796	66,647	72,407	1,434	13,389
IV Cotton 1/3 Alfalfa 1/3 (Irrig)Barley 1/3	50,667	65,345	6,941	5,707	38,019	52,697	28,591	32,539	9,428	20,158
V Cotton 1/4 Alfalfa 1/4 Barley (dry) 1/2	37,129	47,918	6,941	5,707	24,481	35,270	20,960	23,840	3,521	11,430
VI Cotton 1/4 Barley (dry) 3/4	27,937	36,818	6,941	5,707	15,289	24,170	15,760	17,280	- 471	6,890

TABLE 20

Comparative Gross Income, Fixed Cash Expenses, and Net Return for Operating Expenses and Family Income: 640-Acre Farm by Organization and Yield, Adjusted 1953 Prices and Costs

Organization	Gross income		Principal and interest on real estate	Principal and interest on equipment	Net for operating and living expenses		Estimated operating expenses		Net for family living expense and income tax	
	Yield Level I	Yield Level II			Yield I	Yield II	Yield I	Yield II	Yield I	Yield II
	dollars									
I Cotton 2/3 Alfalfa 1/3	150,473	197,172	13,110	8,917	128,446	175,145	74,882	86,615	53,564	88,530
II Cotton 1/2 Alfalfa 1/4 Potatoes 1/4	166,611	208,354	13,110	8,917	144,584	186,327	120,320	132,000	24,264	54,327
III Cotton 1/3 Alfalfa 1/3 Potatoes 1/3	161,482	196,909	13,110	8,917	139,455	174,882	132,073	143,593	7,382	31,289
IV Cotton 1/3 Alfalfa 1/3 (Irrig) Barley 1/3	101,304	130,649	13,110	8,917	79,277	108,622	56,743	64,635	22,534	43,987
V Cotton 1/4 Alfalfa 1/4 Barley (dry) 1/2	74,258	95,837	13,110	8,917	52,231	73,810	41,600	47,360	10,631	26,450
VI Cotton 1/4 Barley (dry) 3/4	55,874	73,637	13,110	8,917	33,847	51,610	31,360	34,400	2,487	17,210

to be repaid in three years and were to bear 4½ per cent interest. The size of these loans varied from $7,000 on the 80-acre farm to $25,000 on the 640-acre farm. Yield level I is based on 1½-bale cotton and comparable yields of other crops. Yield level II involves 2-bale cotton and comparable yields for other crops.

Comparing the "net for family living expenses and Income Tax payments", it is evident that for the 80-acre farm, an organization of high return crops is essential in the areas having less than maximum yields if indebtedness of the magnitude assumed is to be retired (Table 17). In the case of the 160-acre farm with high yields, net for living expenses does not fall below $4,000 per year until dry barley enters the organization (Table 18). With lower yields, the operator of the 160-acre farm is committed to seek alternatives to cotton which will return as near comparable net returns as possible in order to meet his fixed debt payments. The operator of the 320-acre farm with 2-bale cotton and comparable yields for other crops should not see his income fall to a level below which he cannot pay his debts and still have better than $6,000 to maintain himself and his family (Table 19). With yields at the lower level, he may witness difficulty in meeting his obligations. The operator of the 640-acre farm would have no difficulties in his financing until three-fourths of his land is in dry-farmed barley and then only if the yields are as low as 1½ bales for cotton and 8 hundredweight for barley (Table 20).

It is evident from the information presented thus far that (1) adjustments to allotments must be made by all cotton producers, (2) small farm operators, tenants, farm operators with substantial debts, and those producers operating in high cost or low yield areas have peculiar and more serious problems to meet in the adjustment, (3) incomes for all California cotton producers will decline sharply as the proportion of the total acreage on the farm in cotton is reduced to allotment levels.

The discussion to this point has been oriented almost exclusively to the place of crops in the adjustment to cotton allotments, little mention being made of the possibility for livestock enterprises in the cotton farm organizations of California. The next section of this paper deals exclusively with this problem.

to be repaid in three years and were to bear 4½ per cent interest. The size of these loans ranged from $1,000 on the 80-acre farm to $25,000 on the 640-acre farm. Yield level I is based on 1½-bale cotton and comparable yields of other crops. Yield level II involves 2-bale cotton and comparable yields for other crops.

Comparing the "Net for family living expenses and Income Tax payments", it is evident that for the 80-acre farm, an organization of high return crops is essential in the areas having less than maximum yields if indebtedness of the magnitude assumed is to be retired (Table 17). In the case of the 160-acre farm with high yields, net for living expenses does not fall below $1,900 per year until dry barley enters the organization (Table 18). With lower yields, the operator of the 160-acre farm is compelled to seek alternatives to cotton which will return as near comparable net returns as possible in order to meet his fixed debt payments. The operator of the 320-acre farm with 2-bale cotton and comparable yields for other crops should not see his income fall to a level below which he cannot pay his debts and still have better than $6,000 to maintain himself and his family (Table 19). With yields at the lower level, he may witness difficulty in meeting his obligations. The operator of the 640-acre farm would have no difficulties in his financing until three-fourths of his land is in dry-farmed barley and then only if the yields are at the 1½ bales for cotton and [illegible] sacks for barley (Table 20).

It is evident from the information presented thus far that (1) adjustments to allotments must be made by all cotton producers, (2) small farm operators, tenants, farm operators with substantial debts, and those producers operating in high cost or low yield areas have peculiar and more serious problems to meet in the adjustment, (3) incomes for all California cotton producers will decline somewhat as the proportion of the total acreage on the farm in cotton is reduced to allotment levels.

The discussion to this point has been oriented almost exclusively to the place of crops in the adjustment to cotton allotments, little mention being made of the possibility for livestock enterprises in the cotton farm organizations of California. The next section of this paper deals exclusively with this problem.

V. Role of Livestock in Adjusting to Cotton Acreage Allotments

Livestock offers opportunities to some California farmers to replace a portion of the income expected to be lost through cotton acreage allotments in 1954. The opportunities will be much greater and will extend to many more farmers if cotton allotments are continued over the next several years. It appears highly probable at this time that cotton allotments will be extended at least through 1955 and possibly longer. Assuming that the marketing quota is limited to the 10 million bales announced by the Secretary, and that other factors in the supply and demand situation continue as they have been going for the last 12 months, it is entirely probable that the carryover into the marketing season beginning August 1, 1954 will be somewhere around 9 million bales. This would be more than 3 million in excess of the carryover on August 1, 1953, and almost certainly would mean acreage allotments for the 1955 season. Quite possibly even that season would not allow time to work the supplies down enough to eliminate the marketing quotas and acre limitations under legislation in effect on January 1, 1954. It is highly possible, furthermore, that the 1954 crop will not be held to the 10 million bale quota already announced.[1/] To the extent that this quota and the related acre allotments are raised, it is increasingly probable that 1955, and even later seasons, will see acreage allotments continuing. These speculations assume no sharp change in the major factors affecting the cotton production and consumption pattern. A major war or a yield-reducing drought over the eastern cotton area would modify or drastically change these conclusions.

To the extent that California cotton-producing farmers recognize these possibilities in the over-all cotton situation, they may find it worthwhile to consider seriously adding or expanding existing livestock enterprises on individual farms. It undoubtedly will make a great deal of difference to the individual farmer as to whether he thinks (a) that he will be faced with cotton acre allotments only in 1954 or, (b) that they may continue for some

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[1/] An increase above 10 million bales production in 1954 may be expected under any modification of existing legislation to increase the national allotment above 17.9 million acres, assuming reasonably normal weather.

7. Role of Livestock in Adjusting to Cotton Acreage Allotments

Livestock offers opportunities to some California farmers to realize a portion of the income expected to be lost through cotton acreage adjustment in 1954. The opportunities will be most promising and will extend to many more farmers if cotton allotments are continued over the next several years. It appears highly probable at this time that cotton allotments will be continued at least through 1955 and possibly longer. Assuming that the established quota is limited to the 10 million bales announced by the Secretary, and that other factors in the supply and demand situation continue as they have been going for the last 12 months, it is relatively probable that the carryover into the marketing season beginning August 1, 1955 will be somewhere around 9 million bales. This would be more than 3 million in excess of the carryover on August 1, 1953, and almost certainly would mean acreage allotments for the 1955 season. Quite possibly, even that season would not allow time to work the surplus down enough to eliminate the marketing quotas and acre limitations under the conditions in effect on January 1, 1954. It is highly possible, furthermore, that the 1954 crop will not be held to the 10 million bale quota already announced.1/ To the extent that this turns out and the national acre allotments are raised, it is increasingly probable that 1955, and even later seasons, will see acreage allotments continuing. These speculations assume no major changes in the major factors affecting the world situation and international agreements. A major war or a general widespread drought over the eastern cotton area would undoubtedly materially change these conclusions.

If the [illegible] California cotton-producing farmers recognize this possibility in the next several months planning, they may find it worthwhile to consider seriously adding or expanding existing livestock enterprises on individual farms. It undoubtedly will make a great deal of difference to the individual farmer as to whether he thinks (a) that he will be faced with cotton acre allotments only in 1954 or, (b) that they may continue for some

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1/ An increase above 10 million bales production in 1954 may be expected under any modification of existing legislation to increase the national allotment above 17.9 million acres, assuming reasonably normal weather.

indefinite period. The farmer who already produces livestock can most readily substitute milk or meat earnings for cotton income. Even he usually will face important changes in his farm business setup. The cotton farmer who is not also a livestock man must drastically reorganize his operations. He must increase capital, provide improvements and equipment, obtain livestock, and arrange new market outlets. He usually will have to learn new production technology and hire or train workers accordingly. He certainly must adjust his management policies and practices. Frequently he will have to renegotiate rental contracts, financing arrangements, and other legal relationships.

There are large numbers of farmers in the San Joaquin Valley and the Desert cotton-growing counties who already are growing, or until recently were producing, livestock or livestock products of some kind or another. The San Joaquin Valley as a whole produced 38 per cent of California's commercial milkfat receipts in 1952. Merced, Tulare, and Fresno counties ranked second, fourth, and fifth in the San Joaquin area in this total production. It also is important that an increase in dairy production in the San Joaquin cotton-producing counties would represent reversal of a trend. The number of milk cows trended down sharply from 1947 to 1953 in Kern, Kings, Merced, and Fresno counties (Table 21). Tulare County experienced an 11 per cent reduction during these years while Madera had a 4 per cent gain. South of the Tehachapi, Imperial County had a 35 per cent decrease, from a much smaller initial number in 1947, while Riverside showed a 10 per cent gain. The interrelationship of cotton with other crops is such that cotton has tended to displace feed crops such as hay and irrigated pastures and thus to encourage reduced dairy cattle numbers and production in these counties.

Beef cattle numbers, in contrast to the dairy situation, increased in all of the cotton counties except Kern from 1947 to 1953 (Table 21). Madera and Merced counties had 68,000 and 127,000 beef cattle respectively, on that date. Tulare and Fresno counties had 130,000 and 105,000 while Kern and Kings counties had 125,000 and 46,000 respectively. Beef production is highly important in Imperial and Riverside counties. Imperial had 146,000 and Riverside 68,000 beef cattle on January 1, 1953. Detailed data are not available to identify the numbers of cattle involved in breeding herds and in feeding operations, respectively. There is information available, however, to indicate that a substantial proportion of the beef cattle listed here were in feed lots on January 1, 1953. Such cattle on feed probably

TABLE 21

Livestock Numbers 1947-1953: California Cotton Growing Counties a/

January 1	All cattle and calves	Milk cows	Beef cattle	Hogs	All cattle and calves	Milk cows	Beef cattle	Hogs
	number				number			
	Fresno County				Kern County			
1947	128,000	45,200	82,000	28,000	170,000	15,900	155,700	15,000
1948		41,800				13,900		
1949		40,700				12,500		
1950	110,000	40,500	67,500	30,500	141,000	12,500	125,400	17,500
1951		38,500				13,000		
1952	141,000	38,400	102,100	22,300	143,000	13,200	129,800	20,600
1953	144,000	39,300	104,700	16,500	137,000	11,900	125,100	16,200
	Kings County				Madera County			
1947	71,000	33,300	37,100	8,500	74,000	15,600	58,700	12,000
1948		31,600				16,600		
1949		29,000				16,000		
1950	61,000	29,000	28,400	10,500	64,000	16,500	49,000	14,500
1951		28,000				16,500		
1952	74,000	28,300	45,700	3,100	84,000	16,700	67,300	5,300
1953	72,000	25,700	46,300	2,400	84,000	16,300	67,700	3,800
	Merced County				Tulare County			
1947	172,000	75,900	101,300	16,000	158,000	47,400	110,400	32,000
1948		73,600				46,300		
1949		70,000				45,700		
1950	159,000	69,700	83,700	19,000	137,000	45,700	89,800	42,000
1951		67,000				43,700		
1952	184,000	67,600	116,400	8,100	172,000	44,100	127,900	18,400
1953	192,000	65,300	126,700	5,800	172,000	42,100	129,900	13,400
	Imperial County				Riverside County			
1947	75,000	8,200	67,000	8,000	55,000	9,600	47,000	18,000
1948		4,600				7,000		
1949		4,600				6,800		
1950	63,000	4,900	56,500	5,300	59,000	8,200	49,000	22,000
1951		5,300				8,700		
1952	147,000	5,400	141,600	7,400	84,500	9,000	75,500	21,100
1953	151,000	5,300	145,700	6,200	79,000	10,600	68,400	18,700

a/ Source: USDA, BAE, Crop and Livestock Reporting Service.

numbered as many as 40 to 50,000 in the San Joaquin Valley, not considering Kern County. Approximately 100,000 were on feed in Imperial County.

Hay Supplies in Ratio to Hay-Consuming Animal Units.--The farmer who does decide to substitute livestock for cotton income should be convinced that by doing so he can increase profit. Such gains can result from more complete or higher return use of land or labor--growing and feeding irrigated pasture or other forage crops, or providing additional profitable work for the farm labor supply. Livestock, again, is a means of converting feed into higher priced goods; meat, milk, or other products. The farmer with limited acreage can use livestock to expand the size of his business and his earnings. In all situations only farmers who manage livestock efficiently can expect such production to increase net farm earnings. Inefficient managers usually will receive less net income from crops plus livestock than from crops alone.

One of the important management problems for farmers who do decide to expand livestock production is how to determine the most profitable means of converting hay and pasture into feed for livestock products. It already has been indicated in a previous section that alfalfa production is expected to increase sharply, and that alfalfa hay prices are expected to be relatively disadvantaged among the principal farm crops affected by the cotton acreage allotments. The meaning of this situation may be better understood by examining trends in the production of hay in relationship to numbers of livestock that consume hay. This was done by determining total hay produced during the period 1940-1953 and then comparing these totals with the number of hay-consuming animal units during each of these years. The total hay-consuming animal unit for each year results from adding up livestock numbers after appropriate adjustments of the different classes and ages according to the amount of hay consumed. This method is outlined in footnote to the table. The same method was used for each of the years included. The highest ratio of hay to hay-consuming animal units came in 1950, the year of the last previous cotton acreage allotment. There were 2.29 tons of hay per hay-consuming animal unit that year; the supply has varied from 1.9 to 2.0 tons since 1950 (Table 22). It never fell below 2.03 tons per hay-consuming animal unit, however, during the years from 1943-1949. It obviously is impossible to know at this date what will be either the production of hay or the number of hay-consuming animal units for 1954. If we assume, however, that alfalfa production will be increased 368,000 tons while the same quantity of other hay is produced and that the same number of hay-consuming animal

units will have to be fed in 1954 the result would be a ratio of 2.10 tons of hay per animal unit. Any increase in hay or reduction in numbers of animal units would increase this ratio. It is evident that a fairly close balance has been maintained since 1940 in the ratio of hay to the livestock that eats hay (Table 22). There has been an upward trend in both livestock numbers and hay production.

There appears strong evidence that the upward trend in hay-consuming animal units will continue in California. Sheep numbers reached a low point in 1949 and since have increased. Cattle numbers quite possibly reached the peak of their current cycle on January 1, 1953. It will be pointed out below that this occurrence if it proves to be factual, does not necessarily mean a reduction in the amount of hay consumed by cattle in California. Horse and mule numbers, of course, are on a downward trend as have been hogs during recent years. Cyclical factors may explain the decrease in hog numbers. Both hens and pullets and turkeys produced, although of minor importance in the total, are trending upward. It appeared evident that if meat and livestock product production are to be increased in California there will be a market for increased quantities of hay over those produced in the last few years. This increase may come too abruptly from the standpoint of the farmer who depends on cash sales of hay in 1954. Over a period of the next several years, however, the indicated increase should be absorbed by the livestock population. Also during the next few years the anticipated increase in 1954 probably will serve as a stimulus for farmers to increase feed and livestock product production. This probably will occur both on the farms where the hay is produced and on other farms that buy their feed.

Demand Prospects Favorable for Livestock Producers.--Demand for meat and livestock products in California has been increased sharply since 1940 by a tremendous population growth that is expected to continue at least 5 to 10 more years. Total people numbered 6.9 millions in 1940, 10.6 in 1950, and 12.1 in 1953. Estimates indicate about 13 millions in 1955 and there could be 14 millions or more by 1960 (Table 23).

Neither cattle numbers nor slaughter kept up with population increases from 1940 to 1953 (Tables 23 and 24). All California livestock statistics show declines during this period when expressed in ratio to people. California has made up the deficit in state production by shipping in cattle, sheep, and hogs, as well as meat. She also ships in poultry and eggs, and processed milk products. The current position of the beef cattle cycle tends

TABLE 22

Ratios of Hay Production to Hay Consuming Animal Units: California 1940-1953 a/ b/

	Hay produced													Ratio hay to consuming units
	Alfalfa	Grain	Other tame	Wild	Total	Cattle b/	Sheep b/	Horses mules b/	Hogs b/	Hens b/ pullets	Turkeys b/ produced	Total		
	thousand tons					units								tons
1930-1939 average						1,609	678	176	7	20	5	2,495		
1940	3,477	1,150	230	248	5,105	1,745	660	153	9	19	8	2,594		1.96
1941	3,507	1,154	236	239	5,136	1,819	665	148	9	18	8	2,667		1.92
1942	3,549	1,164	236	258	5,207	1,928	674	145	9	21	8	2,785		1.87
1943	4,032	1,340	230	230	5,832	2,027	639	139	10	22	10	2,847		2.05
1944	4,396	1,134	242	172	5,944	2,145	603	131	11	25	11	2,926		2.03
1945	4,309	1,234	249	224	6,016	2,198	562	124	8	22	13	2,927		2.06
1946	4,623	983	219	178	6,003	2,181	489	119	7	24	13	2,833		2.12
1947	4,724	983	249	174	6,130	2,219	446	113	7	22	10	2,817		2.18
1948	4,162	731	259	190	5,342	2,084	404	106	6	23	12	2,635		2.03
1949	4,281	780	236	152	5,449	2,068	377	98	7	25	17	2,592		2.10
1950	4,973	826	253	174	6,226	2,194	378	93	7	28	17	2,717		2.29
1951	4,283	718	258	167	5,426	2,324	388	88	6	28	23	2,857		1.90
1952	4,507	944	282	199	5,932	2,416	401	82	6	29	26	2,960		2.00
1953	4,617	832	279	185	5,913	2,395	424	79	5	29	23	2,955		2.00

a/ Sources: Hay Production; USDA,BAE, Crop and Livestock Reporting Service, California Field Crop Statistics May, 1953, Hay Consuming Animal Units calculated by authors from official reports of Crop and Livestock Reporting Service as available. Estimates by authors as necessary for 1953 data not yet reported.

b/ Procedural note for Table 22. The method used to determine Hay-consuming animal units was adapted from that outlined in the footnote of Table 68,p.68, Feed Statistics, January, 1953,(USDA,BAE). Cattle units were calculated as the annual totals for the following items:

Dairy cows two years and over on January 1	(x)	1.0
Beef cows two years and over on January 1	(x)	.88
The sum of dairy and beef heifers one to two years, bulls over one year and calves on January 1	(x)	.44
The sum of steers one year and over plus net stocker and feeder inshipments	(x)	.33

Sheep units included: Stock sheep on January 1	(x)	.20
The sum of sheep and lambs on feed on January 1, plus one-half the sum of lambs raised and stocker and feeder sheep shipped in	(x)	.058
Horses and mules	(x)	.75
Hogs	(x)	.01
Hens and pullets on January 1	(x)	.0012
Turkeys raised	(x)	.0024

TABLE 23

California Cattle Numbers and Slaughter, Human Population: Averages 1930-1939, and Annual Totals 1940-1953 a/

	Beef cattle on farms January 1				All dairy cattle	All cattle and calves	Shipments			Slaughter				Human population
	Females									Inshipped				
	2 years +	1-2 years	Calves	All			Total in	Total out	Net	Immed.	Delay	State	Total	
	thousands													millions
1930-1939	437	148	213	1,115	1,053	2,168	751	32	719	331	388	643	1,362	6.19
1940	470	158	209	1,123	1,155	2,278	858	33	825	322	503	635	1,460	6.91
1941	498	176	232	1,232	1,228	2,460	827	42	785	383	402	760	1,545	7.31
1942	545	190	284	1,380	1,301	2,681	834	55	779	446	333	964	1,743	7.86
1943	596	205	274	1,498	1,344	2,842	780	65	715	385	330	757	1,472	8.42
1944	658	200	312	1,561	1,395	2,956	1,062	91	971	572	399	1,084	2,055	8.83
1945	601	220	210	1,497	1,413	2,910	1,442	81	1,361	682	679	896	2,257	9.15
1946	620	230	264	1,527	1,412	2,939	1,296	131	1,165	663	502	1,162	2,327	9.55
1947	595	239	227	1,460	1,450	2,910	1,301	113	1,188	549	639	1,238	2,426	9.86
1948	571	216	218	1,366	1,398	2,764	1,173	170	1,003	481	522	1,063	2,066	10.16
1949	580	219	250	1,371	1,365	2,736	1,051	86	965	434	531	1,147	2,112	10.43
1950	622	176	267	1,359	1,350	2,709	1,389	73	1,316	436	880	629	1,945	10.64
1951	679	193	350	1,572	1,354	2,926	1,483	135	1,348	408	940	679	2,027	11.11
1952	739	229	335	1,787	1,432	3,219	1,360	97	1,263	500	763	980	2,243	11.57
1953	786	212	333	1,795	1,488	3,283	--	--	--	--	--	--	--	12.08

a/ Sources: Reported data, USDA, BAE, Crop and Livestock Reporting Service; California Annual Livestock Report, and other official releases.

TABLE 24

California Cattle Numbers and Slaughter in Ratio to Human Population:
Averages 1930-1939 and Annual Totals 1940-1953 a/

	Beef cattle on farms January 1				All dairy cattle	All cattle and calves	Shipments			Slaughter			
	Females		Calves	All			Total in	Total out	Net	Inshipped		State	Total
	2 years +	1-2 years								Immed.	Delay		
	head												
Ratios of Livestock to Population													
1930-1939	.07	.02	.03	.18	.17	.35	.12	.005	.12	.05	.06	.10	.22
1940	.07	.02	.03	.16	.17	.33	.12	.005	.12	.05	.07	.09	.21
1941	.07	.02	.03	.17	.17	.34	.11	.01	.11	.05	.05	.10	.21
1942	.07	.02	.04	.18	.16	.34	.11	.01	.10	.06	.04	.12	.22
1943	.07	.02	.03	.18	.16	.34	.09	.01	.08	.05	.04	.09	.17
1944	.07	.02	.04	.18	.16	.33	.12	.01	.11	.06	.05	.12	.23
1945	.06	.02	.02	.16	.15	.32	.16	.01	.15	.07	.07	.10	.25
1946	.06	.02	.03	.16	.15	.31	.13	.01	.12	.07	.05	.12	.24
1947	.06	.02	.02	.15	.15	.30	.13	.01	.12	.06	.06	.12	.25
1948	.06	.02	.02	.13	.14	.27	.12	.02	.10	.05	.05	.10	.20
1949	.06	.02	.02	.13	.13	.26	.10	.01	.09	.04	.05	.11	.20
1950	.06	.02	.02	.13	.13	.25	.13	.01	.12	.04	.08	.06	.18
1951	.06	.02	.03	.14	.12	.26	.13	.01	.12	.04	.08	.06	.18
1952	.06	.02	.03	.15	.12	.28	.12	.01	.11	.04	.06	.08	.19
1953	.06	.02	.03	.15	.12	.27	--	--	--	--	--	--	--

a/ Ratios calculated by authors.

to conceal the increased dependence on outside supply; numbers on January 1 were higher in ratio to people in 1952 and 1953 than for the four previous years (Table 24). Heavy slaughter of California cattle shown for 1952 continued into 1953, however, and it is probable that beef cattle per person, if not state totals, were lower on January 1, 1954. Stocker and feeder inshipments dropped 45,000 while slaughter of California cattle increased 307,000 in the first nine months of 1953 as compared with 1952. The increase of inshipments for immediate slaughter was 176,000 during this period. Population will continue to grow faster than beef numbers in California unless there are drastic changes in the pattern of feed production and use for cow and calf herds in the state. This means continued increases in inshipments and more beef cattle feeding.

The state has met the demand for increased milk by shifting California milk use from manufacture to the fluid market. California produced 6,036 million pounds of milk and used commercially 5,750 million pounds in 1952 (Table 25). The commercial use represented 496 pounds per person of which 70 per cent was consumed in fluid form (Table 26). The total commercial use represents 2.9 per cent increase over 1946 when 61 per cent of commercial consumption was used as fluid milk. Milk cow numbers increased in California from 1951 to 1953 but not fast enough to gain on population (Tables 25 and 26). If the shift from manufactured to fluid milk were terminated, an added million persons using fluid milk at the average 1952 rate of 348 pounds per person would require over 45,000 additional dairy cows in California. If, as may be expected, the shift from manufactured to fluid use does not cease entirely, and even if fluid milk consumption per person continues to decline slowly, dairy cow numbers still must increase. Demand is developing for more milk, as well as meat, in California.

Many farmers both in and out of the cotton areas are concerned about what added production of grain and alfalfa from cotton-released acres will do to prices of these substitute crops. Some see a warning in 1953 price patterns, particularly for alfalfa hay. The lower these prices drop, of course, the greater the opportunity for gains from converting grain and alfalfa to meat or livestock products--provided prices of these end products do not decline enough to make such conversion unprofitable.

Price relationships in the summer and fall of 1953 indicate that it was as profitable then as during most of the 1930-1952 period to feed livestock, except beef cattle considering only ratios of feed costs to

TABLE 25

California Dairy Cattle Numbers, Milk Production and Utilization; Averages 1930-1939 and Annual Totals 1940-1953 a/

	Dairy cattle on farms January 1				Milk Production					Milk utilization b/		
	Females				Average number cows milked	Per cow		Total		Market	Manufacture	Per cent for market
	2 years +	1-2 years	Calves	All		Milk	Milkfat	Milk	Milkfat			
	thousands					pounds		million pounds				per cent
1930-1939	664	162	171	1,053	636	6,617	252	4,210	160	1,658	2,298	41.9
1940	720	181	190	1,155	705	6,940	267	4,893	188	2,083	2,414	46.3
1941	756	188	217	1,228	740	6,880	265	5,091	196	2,181	2,513	46.4
1942	786	215	231	1,301	754	6,880	265	5,188	200	2,375	2,433	49.4
1943	810	228	237	1,344	757	6,900	266	5,223	201	2,709	2,135	55.9
1944	834	230	262	1,395	775	7,070	272	5,479	211	2,927	2,174	57.4
1945	859	245	238	1,413	800	7,150	275	5,720	220	3,126	2,230	58.4
1946	885	220	236	1,412	825	7,110	274	5,866	226	3,382	2,112	61.6
1947	912	214	250	1,450	824	7,250	283	5,974	233	3,537	2,083	62.9
1948	866	224	238	1,398	786	7,360	287	5,785	226	3,494	1,948	64.2
1949	840	216	240	1,365	780	7,520	293	5,866	229	3,609	1,921	65.3
1950	840	217	224	1,350	777	7,710	301	5,991	234	3,706	1,947	65.6
1951	832	205	249	1,354	781	7,700	300	6,014	235	3,892	1,787	68.5
1952	849	233	278	1,432	790	7,640	298	6,036	255	4,031	1,719	70.1
1953	857	260	296	1,488	--	--	--	--	--	--	--	--

a/ Sources: Reported Data USDA, BAE, California Annual Livestock Report, California Dairy Industry Statistics for 1952, and previous years. Ratios calculated by authors.

b/ Data for 1930-1939 estimated by authors.

TABLE 26

California Dairy Cattle Numbers, Milk Production and Utilization in Ratio to Human Population; Averages 1930-1939 and Annual Totals 1940-1953

	Dairy cattle on farms January 1				Average number cows milked	Milk production		Milk utilization	
	Females					Total			
	2 years +	1-2 years	Calves	All		Milk	Milkfat	Market	Manufacture
	head					pounds			
Ratios of Livestock Factors to Human Population									
1930-1939	.11	.03	.03	.17	.10	680	26	268	371
1940	.10	.03	.03	.17	.10	708	27	301	349
1941	.10	.02	.03	.17	.10	696	27	298	344
1942	.10	.03	.03	.16	.10	660	25	302	309
1943	.10	.03	.03	.16	.09	620	24	322	254
1944	.09	.03	.03	.16	.09	620	24	331	246
1945	.09	.03	.03	.15	.09	625	24	342	244
1946	.09	.02	.02	.15	.09	614	24	354	221
1947	.09	.02	.02	.15	.08	606	24	359	211
1948	.08	.02	.02	.14	.08	569	22	344	192
1949	.08	.02	.02	.13	.07	562	22	346	184
1950	.08	.02	.02	.13	.07	563	22	348	183
1951	.07	.02	.02	.12	.07	541	21	350	161
1952	.07	.02	.02	.12	.07	522	22	348	148
1953	.07	.02	.02	.12	--	--	--	--	--

livestock and livestock product prices. Comparisons were made by dividing California farm prices of beef cattle, milk and other livestock or products by the annual average farm prices of barley and alfalfa hay. The resultant ratios show how much of these feeds can be bought with 100 pounds of meat or milk, one pound of chicken or one dozen eggs. As compared with postwar years, price relationships were favorable in the period July through October 1953 for feeding barley to produce pork, poultry meat or eggs, but somewhat less favorable for producing beef (Table 27). The highly favorable price ratios for beef cattle in 1950-1952, on the other hand, reflected unusual conditions, and definitely should not be viewed as normal. The price ratios were relatively favorable in July-October 1953 for feeding alfalfa to both dairy cows and beef cattle. It is impossible to know how price relationships in 1954 will differ from those in 1953--much less those of later years. It seems possible that beef cattle and calves should be as high or higher, however, assuming normal weather over the nation. Drought-induced sales have reinforced the regular cyclical liquidation in causing heavy marketings, thus down-pressure on prices, in 1953. It also is likely that alfalfa prices will rule somewhat lower in 1954 if acreage is increased as expected. It is doubtful, on the other hand, whether price ratios will continue equally favorable to hogs. Their numbers are at a low point in the cycle, and production probably will increase. All in all, prospects appear favorable for feed-livestock price ratios favoring increased meat and livestock production in California. This is particularly true for feeding pasture and hay during the next several years.

There are two distinct methods of converting feed into beef in California. The drylot method has become increasingly important during recent years. The cotton farmer who adds this enterprise essentially is going into a new business. Gains can be obtained at relatively little expense above feed costs by this method under large scale operation if modern endless-conveyor flow equipment is used. Little labor expense in relationship to overhead cost is involved. The investment in plant easily can amount to 50 to 100 thousand dollars, hence the need for large scale operation. The grazing method usually is based on irrigated pasture in the cultivated valleys. Farmers have found that well-managed irrigated pasture alone, or supplemented with small amounts of hay, will produce 350 to 450 pounds of beef per acre per season at a cost of 15 to 20 cents per pound

TABLE 27

California Farm Prices and Ratios Selected Feeds to Indicated Livestock and Livestock Products; Averages 1930-1939 and Annual Data 1950-1953 a/

Year	Average farm prices								Price ratios						
									Beef cattle		Hogs	Chickens	Eggs	Milk	
	Beef cattle	Calves	Hogs	Chickens	Eggs	Milk	Barley b/	Alfalfa c/	vs. Barley	vs. Alfalfa	vs. Barley	vs. Barley	vs. Barley	vs. Barley	vs. Alfalfa
Unit	100 pounds			pounds	doz.	cwt	cwt	ton							
	dollars								decimals						
1930-1939 average	5.95	7.54	7.46	.175	.218	1.77	.96	9.63	6.20	.618	7.77	.182	.227	1.84	.184
1950	22.60	27.20	20.40	.280	.415	3.93	2.54	19.70	8.90	1.147	8.03	.110	.163	1.55	.199
1951	28.60	33.70	22.10	.294	.542	4.66	3.15	30.40	9.08	.941	7.02	.093	.172	1.48	.153
1952 b/	25.00	28.00	20.30	.289	.470	5.32	3.33	32.40	7.51	.772	6.10	.087	.141	1.60	.164
1953 c/ Jan.-June	19.23	21.90	23.05	.278	.510	5.12	3.05	27.23	6.30	.706	7.56	.091	.167	1.67	.188
July	17.20	18.00	26.10	.265	.540	4.45	2.83	21.00	6.08	.819	9.22	.092	.190	1.57	.212
August	17.00	17.30	25.50	.235	.570	4.55	2.76	20.10	6.16	.840	9.24	.085	.210	1.65	.226
September	16.30	16.10	25.00	.290	.560	4.75	2.73	19.50	5.97	.836	9.16	.106	.205	1.74	.244
October	15.80	15.50	23.70	.288	.580	4.85	2.69	18.90	5.87	.836	8.81	.107	.216	1.80	.257
July-October	16.58	16.72	25.07	.283	.562	4.65	2.72	19.88	6.10	.834	9.22	.104	.207	1.71	.234

a/ Sources: Prices, official reports California Crop and Livestock Reporting Service. Ratios calculated by authors.

b/ Preliminary.

c/ Simple averages calculated by authors.

at current prices. The pasture plus 3 or 4 pounds of barley and 4 to 6 pounds of hay per head per day will produce 500 to 600 pounds of beef at similar costs, starting with 800-pound feeders. The margin between prices of feeder and finished cattle largely will determine if this operation is profitable.

Home-grown feed also is used profitably in dairying. Total feed usually will represent at least 50 per cent and may account for 60 per cent or more of the total cost of producing milk on family dairies, about one-third of which can be supplied by irrigated pasture and another third by hay. This would require about two feed acres per cow. Considering July 1953 prices, manufacturing milk sold in the San Joaquin Valley at $3.47 and could be produced for approximately $3.00 per hundredweight on efficiently-organized dairy farms of economic size. Such production is a means of selling both home-grown feed and farm labor. Home-grown feed alone represents about $1.40 and labor another 75 cents out of the $3.00 total cost. These cost data are cited as typical of the kind of dairies described. A wide range in costs exists among individual producers in any given locality, due to variations in size, source and kinds of feed, productivity of cows, investment, organization, managerial efficiency and many other relevant factors.

Beef producers should expect shifting price relationships in the future as in the past. They cannot reasonably expect slaughter animal prices at the 1951 levels. They should expect some periods when it will be hard to make any money. A favorable factor for both beef and dairy producers is expected to be relatively plentiful forage and hay.

VI. Conclusions

Marketing quotas and acreage allotments, already announced for cotton and wheat crops produced in 1954, require major readjustments by individual farmers in California and other parts of the nation. Cotton producers still have to make these adjustments, since 1954 plantings will not be made for several more months. California farmers, and those in other western states, face particularly serious problems in finding profitable use for diverted acres, and are at a relative disadvantage in this respect compared with cotton producers in the older eastern cotton-growing areas.

California cotton growers will be required to divert enough acres to reduce 1954 acreage over 50 per cent from 1953 cotton plantings under legislation effective at the end of 1953. This means that over 706,000 acres of cotton land in California will be put to other crop uses or left idle in 1954, leaving 698,000 acres to be planted to cotton, as compared with 1,404,000 acres estimated planted to cotton on July 1, 1953. Arizona, with a 57 per cent cut in prospect, is the only other state with a more severe reduction than California, although New Mexico and Florida, at 48 and 49 per cent respectively, have comparable cuts. In terms of acres, the California reduction is substantially greater than those of the other three high-per cent-cut states combined.

Statutory provisions, plus recent production trends, explain the disadvantage of California, the West in general, and Florida under the 1954 cotton marketing quota and acreage allotment program. The laws regulating this program have evolved over a period of years since 1938, and they now are tied quite inflexibly to the historical base approach in establishing allotments. Meanwhile, there has been a steady shift of cotton acreage from the older, lower-yield, and higher-cost areas in the East to the West during the 1947-1952 period used for the base under the 1954 allotment program. Only remedial changes in this legislation can give California relief from the existing inequity represented by her relatively greater acreage cuts than in the East. An increase in the national allotment, of course, could make possible a greater allotment for this state, even though the relative inequity in acreage cuts continues.

Fresno, Kern, and Tulare counties in the San Joaquin Valley must absorb 472,000 acres, or 67 per cent of the California cotton acreage reduction in 1954. The two southern counties, Imperial and Riverside,

will have the heaviest percentage cut, equal to 63 per cent of the 1953 planted acreage, but this represents only 101,000 acres. The same reasons explain these differences among California counties as the discrepancies already indicated regarding states.

There are no actual reports available as yet to indicate what farmers will do with acres diverted from cotton in California. Estimates have been prepared according to the evidence available, the judgment of experienced agricultural workers, and the record of results from the previous cotton acreage allotment program in 1950. Grain, alfalfa, and idle or fallow land are expected to absorb almost 550,000 acres or 77 per cent of diverted land, with specialty crops and miscellaneous uses taking the remainder. Such an over-all adjustment will bring record acreages of barley and alfalfa, and a postwar record for grain sorghum, plus unusually high acreages for sugar beets and other specialty crops. These results would be quite consistent with the 1950 experience, and inevitably must result in record production of feeds and various other farm products. Thus, barley production may increase as much as 3.7 million bags over 1953, and alfalfa by over 350,000 tons, assuming normal weather conditions under such an acreage adjustment pattern.

Downward pressure on prices must accompany a sudden annual increase in production of feeds and other farm products of the dimensions indicated above. It is not possible to predict exactly what such effects will be, but many farmers are apprehensive, and fear serious price declines. These apprehensive producers include both cotton growers and others who expect competition in other lines of production from diverted cotton acres. Barley prices are somewhat less vulnerable than those for alfalfa, provided acceptable storage is available and farmers thus can avail themselves of price support through loans.

California cotton farmers will earn less net income from their farms as a result of the 1954 acreage allotment and reduction. This follows because the replacement crops available for most of the diverted cotton acres are less profitable than cotton. There will be exceptions for some farms and for portions of others to the extent that market outlets can be found for specialty crops, but reduced net income appears inescapable for the cotton-growing areas as a whole.

The amount of net income will vary with choice of enterprises to use the acres taken out of cotton. This choice, in turn, will vary widely among the various cotton farms in different portions of California depending upon a wide range of physical, economic, and institutional factors. Livestock remains relatively important in the Madera-Merced, or northern cotton-growing area in the San Joaquin Valley, and this fact favors the opportunity of farmers to use the expanded feed production effectively. The results should favor substituting grain and forage crops for cotton and to minimize the income-reducing impact of the allotment program.

Specialty crops will use more diverted land in the eastern portion of the cotton-growing San Joaquin Valley, and, consequently, grain and roughage will use less. Even though a wider range of alternative crops is possible, sharp income reductions are expected, for the reason that marketing opportunities are limited. Relatively small increases in most of these specialty crops will bring sharp price drops, while, on the other hand, cotton is highly profitable here, and it will take equally profitable crops to equal its earning capacity. It is in the western side of the San Joaquin and in southern Kern County that most of the idle or fallow land is expected as a result of the allotment program. Water costs are such that grain and alfalfa will be relatively unattractive as alternatives to cotton. The relatively few farmers who have established connections for such specialty crops, such as melons, will have special advantages, while many operators will find it more profitable to put much of the diverted acres into dry grain or to leave such land idle or fallow.

Alfalfa and small grains are expected to replace about half the diverted acres in the southern counties, Imperial and Riverside, while a wide range of specialty crops also will be important, as will livestock. The sharp increase in cotton acreage is comparatively recent in these counties, and it will be easier for many farmers here to make a major shift to other crops than it will be in areas where cotton has dominated for a longer period. Particularly where double cropping is possible, farmers in this area may be able to minimize net income reduction.

Considering size of farm, the operators of extremely small farms will face special problems in making full use of family labor supplies and in obtaining enough earnings to support their families. One result is to narrow the range of possible alternative enterprises, and thus to increase the problems in adjusting to the allotments. Larger farms have somewhat

more flexibility, but relatively high productivity is important in facilitating adjustments; low yield farms will have difficulty in finding alternative crops that will return a net profit.

Their tenure and indebtedness position will affect the success of farmers in adjusting to reduced cotton acres. Full-owners of adequately-sized farms will have the least trouble, while share-tenants of sizeable farms with high yield capabilities in several crops usually will have little difficulty. Cash-tenants, or those owners committed to heavy debt service payments, may find it difficult to obtain enough earnings to meet fixed costs and also to support their families from the farming operations. This problem will be accentuated on relatively small farms and on those of low yield potential.

Marked population growth with consequent broadening markets for meat and livestock products are the most encouraging aspects of the entire agricultural production pattern in prospect for California cotton counties. These factors will be of much greater importance if, as is highly likely, 1954 is only the first in a series of years during which marketing quotas and acreage allotments are in effect for cotton. California population increased over 1.5 million persons after 1950, and in 1953, totalled over 12 millions. Growth continues, and, therefore, offers important opportunities for economic use of the diverted cotton acres.

The major directions in increasing livestock production as farmers shift out of cotton likely will be toward increasing dairying, and finishing out cattle, both relatively intensive operations. Particularly in the San Joaquin Valley, such a shift will mean reversing a trend, inasmuch as cotton itself has tended to displace dairying in this area. Important developments in feeding and finishing cattle also already have occurred both in the southern and San Joaquin counties. Serious problems must be overcome if major expansion in these lines is to occur, favorable price relationships, of course, being essential. Two forces should operate to create more favorable price relationships; the anticipated increases in hay and other feed, and lessening of the flow of cattle to markets as the cyclical liquidation, reinforced by drought conditions in the East, nears completion. Actually, the trend in both livestock numbers and feed production in California has been upward, particularly for hay. The estimated feed

production increases in 1954 are far above normal for one year, but do not appear unmanageable over the next several years in terms of the likely increase in human population and the consequent stimulus to livestock production. Naturally, the abnormally high cattle prices and resulting favorable profit opportunities for cattle during 1950 and 1951 cannot be expected to reestablish themselves as a normal pattern.

Assuming favorable price relations, farmers expanding livestock operations, and especially those going into such businesses for the first time, still face problems and difficulties. They will require added capital, new production technology and skills, and different market outlets. To meet these needs most farmers will find themselves forced to negotiate new contacts and contractual arrangements with credit, marketing and other service agencies. Both profits and losses are usually found among livestock producers in any given locality, and farmers new in livestock management and production will find that efficiency is the key to profits.